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January 1993

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Mai VK3BBU and Max VK3WOD at Mt Worth (Vic) ready to establish a new 10 GHz Video record. Refer to the article on Page 8. The cover photograph and photographs accompanying this article were kindly supplied by Peter Ford VKSTAF. Colour processing is with the compliments of BOND COLOUR LABORATORIES, Richmond Vic.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest National Radio Society Founded 1910

Representing the Australian Amateur Radio Service — Member of the International Amateur Radio Union

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Editor's Comment

Bill Rice VK3ABP

Exam Reports

You will be excused if you immediately imagine that I am going to talk about the WIA Exam Service No Lam NOT! That can be safely left to the team in the Federal Office. Instead. I want to mention an examination recently conducted by half a dozen members of the Redcliffe Radio Club (VK4), in which the candidate was this magazine (or more specifically the October 1992 issue). The Redcliffers then sent us a report entitled "The Worth of 'Amateur Radio' ".

I am happy to be able to say that we passed their cami' Perhaps not with "flying colours", perhaps "damned with faint praise", but still with the score above the acceptable minimum. I think it may interest many of you if I quote some of the examiners' remarks.

First, a solid body-blow: "recently given 24 mint issues of AR by a clubmate. By mint I mean unopened still in their plastic wrappers"! Having survived that depressing assessment, we were then "looked at ... with a fairly critical eve". My editorial comments "are becoming treatises of a bygone era ... a perception of oldworld attitudes". Thank you. Redcliffers! I don't know whether to feel flattered or insulted! They go on to say that I "should canvass important/controversial areas of the WIA and the Amateur Service". I thought I was hitting fairly hard in October, talking about "anti-social and un-civilised" behaviour. but it seems I have a clear-

ance from Redcliffe to hit

The writer of the report is Editor of the club's quarterly magazine and "would not wish to produce 12 x 400 word plus editorials each year". I do sincerely appreciate his sympathy.

WIANEWS came next, with each of 20 news items being critically examined. A mixed bag, but generally favourable. The comments and statistics about exams were "self-serving drumbeating", but almost every-

were "self-serving drumbeating", but almost everything else was marked "good". Much the same applied to the technical articles, even though the examiners were initially "prepared to 'tip a bucket'". Some of the columns were

thought to be a bit long, but here the examining panel became rather subjective, different people having different preferences. This was no surprise to us, trying each month to produce a more balanced magazine!

The final paragraph was a gem! "We approached this originally with the idea of proving "Amateur Radio" a waste of fine trees, but instead came away knowing that it's not a bad read and deserves its spot on the bookshelf." Thank you Red-cliffe, for an assessment. You didn't say, "could try hard-er", but we are going to anyway!

To an examination of another kind. Last month I "re-cycled" some of my 1984 editorial comments, and thought I might continue with that process. First, of course, all that "old stuff" must be read again. But took at all that other material we published in 1984. And 1985.

the WIA 75th Anniversary Year, Masses of information. history, even news. "Bygone ages" can be very interesting!

Back in those days, barely eight years ago, we were publishing 72 page issues, with 20 pages of advertising. In the last issue (December 1992) we had nine pages of advertising, and that was the best for many months! We had a 60 page issue rather than 56, because of the colour centre spread for Dick Smith Electronics, Since 1984, by stringent economies, more of the work "inhouse", and the increasing productivity of modern technology, we have been able to hold our costs down far bet-

ter than seemed possible.

Unfortunately, the same economic landslide, since 1987, which has cut advertising from 20 pages to five or six has also cut membership to just under 6000, from a peak of over 8000. May we hope that perhaps 1992 was the negative peak of the economic cycle and that 1993 may in fact be a Happy New Year!

Amateur Radio Awards

At the Publications Committee meeting held on 1st December 1992, the annual Amateur Radio awards were allocated

Al Shawsmith Award for Journalistic excellence -VK3ARZ - for voluntary

Barrie Gillings, VK2DWC - for the article "A

Mother of a Storm". Barrie's graphical and humorous description of what must have been a terrifying period. during which his house seemed about to collapse around him.

Technical Award -

Drew Diamond VK3XU - for a number of high quality technical articles. Drew consistently provided a first class presentation of his material, including high grade drafting of the diagrams. His articles required little or no editing.

Higginbotham Award -Jointly to Ron Fisher VK3OM and Bill Roper service to the WIA over 17 years of production of the Federal Tapes.

The committee recognised that one of the joint recipients, Bill Roper VK3ARZ is currently a paid employee of the WIA. However, notwithstanding this. Bill for many years prior to, and during the last four years of his engagement, as an UNPAID VOLUNTEER readily performed the duties as stated above. In this respect the committee was satisified that there was no conflict of interest, and had great pleasure

in confirming the award. The Publications Committee congratulates all recipients.

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after ameteur radio affairs within their State,

Division	Address	Officers			Weekly News Broadcasts 1993 Fr		44
VK1	ACT Division GPO Box 600 Canberra ACT 2801	President Secretary Treasurer	Christopher Devis Jan Burrell Ken Ray	VK1DO VK1BR VK1KEN	3.570 MHz 2m ch 5950 Rebroadcast Mondays 8pm 70 cm ch 8525 2000 hrs Sun	(F) (Q) (8) (X)	\$70.00 \$56.00 \$42.00
VK2	Phone (08) 247 7006 NSW Division 109 Wigram Street Parramatta. NSW (PO Box 1086 Parramatta 2124 Phone (02) 889 2417 Fax (02) 633 1525	President Secretary Treasurer (Office hours	Terry Rysland Bob Lloyd Jones Bob Taylor Mon-Fri 11.00-14 0 Wed 1900-2100)	VK2UX VK2YEL VK2AOE	From M/CWM 1.845, 3.986, 7.146°, 10.126, 24,960, 28.320, 52.525°, 64.120, 12.625°, 64.120, 14.700°, 48.362, 128.170°, 63.00°, 120°,		\$86.76 \$53.40 \$38.76
vкз	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9281	President Secretary Treasurer Office hours	Jim Linton Barry Wilton Rob Hailey Tue & Thur 0830-	VK3PC VK3XV VK3XLV I530	1.840MHz AM, 3.815SSB, 7.085SSB, 53.900 FM(R) Mt Dandenong, 148.700 FM(R) Mt Dandenong, 148.800 FM(R) Mt Dandenong, 148.800 FM(R) Mt Baw 147.250 FM(R) Mt Baw 8aw, 147.250 FM(R) Mt Baw 8aw, 147.250 FM(R) Mt St Leonard 1030 hrs on Sunday,	(F) (Q) (S) (X)	\$72.00 \$58.00 \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (07) 284 9075	President Secretary Treasurer	John Aarsse Ken Ayers Devid Travis	VK4QA VK4KD VK4ATR	1.825, 3.065, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz. \$2.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.805 & 147.150 MHz, 1930 Monday	(F) (G) (S) (X)	\$70.00 \$56.00 \$42.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234		Bob Allen Roland Bruce Bill Wardrop	VKSBJA VKSOU VKSAWM	1820 kHz 3:550 MHz, 7,095, 14,175, 28,470, 53:100, 146,000 147,000 Filk[P], Adelaide, 146,700 Filk[P], Mici North, C 146:900 Filk[P] South East, ATV Ch 34 579,000 Adelaide, ATV 444.250 Mid North Berosas Valley 146,825, 438,425 (NT) 3.555m 146,5000, 0900 hts Sunday	(F) (G) (S) (X)	\$70.00 \$56.00 \$42.00
	Adelaide SA 5001) Phone (08) 352 3428				148,700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14,115, 14,175, 21,185, 28,345, 50,150, 438,525 MHz.	(F) (G) (8)	\$80.75
VK6	West Australian Division PO Box 10 West Perth WA 5005 Phone (09) 388 3888	President Secretary Treasurer	Citfi Bastin John Faman Bruce Hedland- Thomas	VKBLZ VKBAFA VKBOO	Country relays 3.582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(X)	\$32.78
VK7	Tasmanian Division 148 Derwent Avenue Lindistame TAS 7015	President Secretary Treasurer	Tom Allen	VK7AL VK7EB VK7ZPK	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 148.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100. 144.100 (Hickort) Recealed Tues 3.590 at 1930 hrs	(F) (G) (S)	\$67.00 \$53.86 \$39.00
VKB	(Northern Territory is part of VK5 as shown received of			donsts from	Membership Grades Full (F) Pension (II) to (F) (G) (X) grades Meedy (G) Student (S) times.		

Note: All times are local. All frequencies MHz.

Hon receipt of AR (X)

WIA News

From the WIA Federal Office

New Licence Conditions

he SEANET Convention in Darwin was the scene for the announcement of forthcoming changes to the amateur radio licence conditions, given in a speech on Saturday night 31 October by the Hon, Warren Snowden MP, standing in for the Minister for Transport and Communications. Senator Bob Collins.

The speech was taped and broadcast nation-wide on each Divisional broadcast on Sunday morning, 1 November, through a telephone hookup to all Divisions from Darwin arranged by Darwin ARC President, Bill "Spud" Murphy VK8ZWM and sponsored by Telecom Australia. The event was unprecedented in WIA history.

Most WIA members will have heard the broadcast speech, which indicated that the proposed changes to the licence conditions would come into effect "early in 1993" and that the specifics of the proposal would be published in AR magazine "very soon".

However, while it was exnected that documentation would be forthcoming from the Department of Transport and Communications (DoTC) in mid-November. in time for publication in the December issue, there has been a delay in drafting sections of the revised licence conditions.

As soon as the completed new licence conditions are received from DoTC, a detailed summary will be provided on WIA Divisional news broadcasts and the full details published in

Amateur Radio magazine. Meanwhile, to reiterate, the main points outlined in the announcement of 31 October were:

- · Introduction of a no-code Novice Limited class of licence allowing use of voice and packet radio transmissions in the 144 MHz and 432 MHz bands:
- · Allowing Limited Licensees use of FM telephony on the 29 MHz band, encouraging more use of
- 10m. · Holders of the Combined Novice and Limited class of licence would be recognised under a single category to be known as the Intermediate class licence
- Novice stations to be permitted a limited increase in power, consistent with the state of technology
- and the availability of equipment. · Usage of packet radio technology will see un
 - necessary technical rules removed. · Rules applying to the use of repeater stations will be simplified.

In his address, Warren Snowden said many of the previous rules were unnecessarily restrictive and impeded the use of new technology.

He went on to add, "I would like to congratulate the Wireless Institute of Australia for its valuable contribution on behalf of its members to the development of reforms to further deregulate the service for the benefit of the amateur operators throughout Australia " Topping off the good news of the main announcement. Warren Snowden advised that amateur licence fees would remain at \$35 for 1993

More Good Publicity for Amateur Radio

Amateur Radio gained valuable public exposure at the Australian Broadcasting Commission's 60th Birthday celebration Picnic in the Park held in Sydney's Parramatta Park early in November.

NSW Division Councillors and volunteers organised and manned a display van with an exhibition along a theme of "past and present", showing the link between the gestation of broadcasting and early amateur radio, and the development of amateur radio into a modern technological hobby.

Some choice items from the Division's historic radio collection, organised by Aub Topp VK2AXT were on display, while some up-to-date Kenwood transceivers borrowed from the Division's VK2BWI station at Amateur Radio House Parramatta were activated for live demonstrations. Just to cap the historic theme, the special callsign VI150SYD was used.

The display was wellnositioned to be seen by the tens of thousands of ABC listeners and viewers who turned up at the event. A large number of publicity pamphlets were given away and those manning the stand went hoarse answering questions.

NSW Divisional President. Terry Ryeland VK2UX, was interviewed on-air on station 2BL in the middle of the day by ABC radio personality Bob Hughes - who also happens to hold the callsign VK2YOW (yes, he's a member!).

As a result of follow-up publicity. the local newspaper group, Cumberland Newspapers, came around to the Division and interviewed Terry VK2UX and Aub VK2AXT. This which appeared along with a photograph of the interviewees in late November.

EMC Standards The Standards authorities

of Australia and New Zealand are moving towards the introduction of regional standards covering a range of electronic and electrical appliances and equipment which can either cause, or suffer from, RF interference

Standards Australia issued new joint Australian and New Zealand standards in October. A complete set of these has been purchased by the Federal Office and held in the library there. RF immunity levels for

TV and broadcast receivers is covered by one of these new standards, while others cover the unwanted RF energy (RFI) generated by VCRs. TV and sound broadcast receivers, computers and other information technology equipment, vehicle ignition systems and power tools.

The issuing of these new standards is an important preliminary to revisions currently under way to the Radiocommunications Act 1983. When originally drafted, provision for such electromagnetic compatibility (EMC) standards was included in the Act, but Australian governments to date have been reluctant to make mandatory standards, perhaps under pressure from manufacturers

importers. It now seems such EMC standards will become a technological imperative for consumer goods in Australia, long after wide adoption in Europe.

Call Book on Disk? The 1993 Call Book can

not be made available on computer disk, or any other form of electronic data. The Federal Office

receives a number of requests each year to supply the Call Book in such form. It seems like a great idea in this "information age", but the contract between the Australian Government Publishing Service and the WIA prohibits the WIA

from doing it.

The WIA only has the right, by way of licence, to publish the Call Book in its printed book format. This. and the copyright provisions, excludes other means of publishing the information, including in electronic form, such as supplying the information as a text file on computer disk.

ZL 160m "Have A Go" Activity This popular activity for 160m enthusiasts and ex-

perimenters will be on again this March, hosted by the Hastings Branch 13 of the NZART.

It's not a contest, just an activity to encourage experimentation on the band as well as some recreation.

But to provide flexibility and to encourage and enable the use of enhanced antennas, the organisers have scheduled the activity to coincide with the NZART Field Day - but it does not form any part of the Field Day contest. It does provide a chance, the organisers say, to guarantee a result for your experimental effort.

The 160m Have A Go Activity runs in two time blocks, from 2000 hrs NZT on Friday 5/3/93 to 0300 hrs NZT Saturday 6/3/93, then from 2000 hrs on 6/3/93 to 0300 hrs on Sunday 7/3/93.

Prime frequency is 1840 kHz, but you are encouraged to use anywhere in the band, as has happened in past Activities, Mode is LSB or CW.

Contact for more information is David Walker ZI 3DK 36 Ardrossan Ave Flaxmere, Hastings NZ.

Want to Contact the Federal Office on Packet?

You can't. While, as a packet operator, you have probably noticed the monthly Federal WIANEWS items disseminated through the packet bulletin boards network by VK3WIA, if you have tried to send a message back to VK3WIA, you're probably wondering why you've never received a response.

That's because, simply, the regulations prohibit it. The relevant section says that a station shall not be used: "to transmit material relating to industrial, commercial, political, social or religious matters". Unfortunately, almost all correspondence with the WIA Federal Office falls into the commercial category. This particularly includes subscription matters, changes of address or callsign, missing AR magazines, etc.

So as not to breach the regulations, VK3WIA is used only for sending out news items relating to the Amateur Radio Service. VK3WIA does not accept incoming packet traffic.

So, if you want to contact the Federal WIA, stick to the common means: phone, fax or Australia Post, Contact details are given on page one of each issue of Amateur Radio magazine, and page one of the 1993 Call Book. Divisional contact details are given on page three of each AR and on page two of the 1993 Call Book

Progress at VNG

Standard frequency and time signal service station. VNG, located at Llandillo west of Sydney, has secured recurrent funding to keep it on the air, and now transmits on a new frequency -2.5 MHz - according to a release from VNG Users Consortium Secretary, Dr Marion Leiba VKIVNG/ VKIRNG. The new 2.5 MHz signal is

a 1 kW transmission from a second-hand Harris-Gates transmitter, radiated from a vertical antenna. The first on-air tests took place on 9 September 1992 and "quasicontinuous" transmission started as a test on 7 October. "This additional frequen-

cy is now permanent, barring unforeseen problems." said Dr Leiba.

The 2.5 MHz signal is intended primarily for the Sydnev area where users were having difficulty receiving the VNG transmissions on 5.0, 8.638, 12.984 and 16 MHz which are radiated

from horizontal antennas. The National Standards Commission succeeded in obtaining recurrent funding for VNG as part of a New Policy Proposal, VNG has been funded to date by donations from users (who formed the voluntary VNG Users Consortium) and funding from The Australian Surveying and Land Information Group (AUS-LIG), who provided running costs for the nast four years and funded the reassembly of the station at Llandillo.

A standby transmitter has been obtained ex-Radio Australia. It is an STC, the same as the other four at VNG. A second "talking clock" is being constructed,

as backup to the unit that went to air from January

Basic Radio Manual

The NZART has published a new, revised edition of its Basic Radio Training Manual While it is simed to cover requirements of the New Zealand amateur licensing system, the publication may be of interest and use to people studying for their licence in Australia as it covers fundamental radio theory. A copy is in the hands of

Brenda Edmonds VK3KT. who is to review it for an early issue of Amateur Radio magazine. For people outside New

Zealand who wish to obtain a copy, it costs A\$13.00 post-paid for single copies. NZART advise that discounts are available if ordering ten or more copies. Write to NZART, PO Box 40 525. Upper Hutt, NZ.

Station Statistics As at 30 September, there

were 18,701 station licences held by Australian radio amateurs. The "most populous" state is NSW, with 5461 licences held, followed by Victoria, with 5002.

The number of repeater licences is 320, 85 of which are in NSW, and 84 in Victoria, while Oucensland follows close behind with 70. There are 28 beacon licences. Hams and

Hurricanes, Again Less than a month after

Hurricane Andrew devastated Florida in the United States (see WIANEWS, December 1992 issue), Hurricane Iniki swept across the Hawaiian island of Kauai and the western coastline of Oahu on 11 September 1992. The ARRL newsletter of November 12 carried an extensive report on the involvement of amateur radio during and after the emergency.

The Radio Amateur Civil Emergency Service (RACES) was activated when Iniki approached the vicinity of Hawaii, which provided vital communications links on VHF FM and packet. Other individuals provided communications too, via VHF FM voice, VHF packet and HF packet. At times, amateur radio provided the only communications links, according to the report.

A great deal of health and welfare traffic was passed via amateur radio during the restoration efforts once the hurricane had passed. Two operators originated more than 1000 messages in six non-stop hours, completing calls to as far away as Sweden, the ARRL newsletter reported. Over 30 in-

dividual	amateurs	were
involved.		

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the Federal Membership Register during the month of November 1992

1.20850 MR B EDGE 1 20001 MR R S FOOTE 1 20872 MR S HIGHLEY MR M MASTROCINOLIE 1.30815

1 20022 T.40373 TA0324

MR G DITIGAN MR R N THORNTON MR N DIIMMA 1,60319 MR R W BARR VK2AP MR 1 R THURSTON VENERI MR I R JONES VKZNRX MR R BUNN

VEIDER MR RITHFORORE VKJEVN MR E V N SHAW VK3IAH - MR D BARROW VK3PO

MR M BURRELL VERYOR MR N DARRACH VK4DBL MR T K MILLION VICARCIE MIR G D ROWE

VEAMICA MIR I MICASPITEN VK4NPH MR P B HARDING

VK4TDS MR D J HOLZNAGEL VK4VDZ. MR S P BONNELL VEAUTH MR WIT NEWPORT VKSVLE MR I. MCDONALD VEGADE MR P R HECKINGROTTOM VK6ALD MR P I BOTTRELL

VK6BHI MR C J LORD VK6XY MR A M KEIGHTLEY VK6ZCW MR C W BROOKE VK6ZID MR B / DOLPHIN VK7PAO MR T C BRUNDLE

ANNINDEX Annual Index 1992

Due to the earlier closing deadlines for this issue (brought about by the Christmas and New Year holiday

season), the Annual Index of articles published in AR during 1992 has regretfully been held over until the February 1993 issue ... VK3UV Production Editor.

adds a new sophistication to the meaning of the word basic...

To most of us basic means you miss out on performance and quality, but not any more, the new Icom IC-728 might be Icom's 'basic' H.F. transceiver, but in fact it makes many other transceivers look pretty basic by comparison!

r.r.v. Call for special introductory pricing!



You might think that a few years of reviewing H.F. transceivers would make any amateur a bit jaded, well obviously not, here is what Neil Duncan, VK3OK, had to say about the IC-728...

"Getting the IC-728 up and running is a treat"

"It almost runs itself - the learning time is very low" "DXing on 20 metres is a snap with a hot little receiver like this

one"! The manual "is an absolute pleasure to use"

"I must say that the IC-728 offers very good value for money indeed."

Amateur Radio Action - 9 June 1992

ewart Electronic Component Phone Stafford Street Huntingdale: PO Box 281 Oakleigh 3166

Point report from the October Board meeting

ONTINUING THE President's undertaking to provide a point summary of each WIA Board meeting, the report on the meeting held over the weekend 24/25 October 1992 follows. Further details may be obtained from your Divisional Federal Councillor.

The October meeting of the WIA Board:

- Board:
- Accepted the resignation of Terry Ryeland as a Director and appointed Roger Harrison, the VK2 Federal Councillor as a Director in his place.
- Received a report from the President on his visits to Divisions and radio clubs as reported in WIANEWS.
- Received a report from the General Manager on Federal Office matters. The office LAN server has been upgraded. Difficulties with customs duty certifications for a particular transceiver have been resolved. The General Manager has been able to take some recreation leave.
- Received a report on publications that delivery of Amateur Radio magazine to many members, commencing from the December issue, may be through a delivery agency other than Australia Post.
- Received a report on examinations which showed the swerage pass rate remains 51%. The income from examinations, after allowing for force on embers, and the substitution of the substitution on members, funds, now shows the break-ene point will now be in around two and a half years time. The General Manager is being subjected to unwarranted personal abuse on packet networks and through the mail as a result of the examination fees increase. The Board agreed DoTC be approached to insert the substitution of the property of th

crease surveillance and audit of examinations as a matter of urgency.

- aminations as a matter of urgency.

 Heard from David Wardlaw about his paper to Communication 92 in Sydney and his recent attendance at an IARU Administrative Council meeting as the Region III representative. David also spoke on his continuing involvement in WARC related matters.
- Reviewed the draft WIA 1993 Program Objectives and after some amendments adopted them. The Objectives will be published in Amateur Radio in due course for member's information
- Directed the Secretary/Manager to enter into negotiations to create a national heading in the "yellow pages"
- of "Clubs -Amateur Radio".

 Appointed Bob Godfrey VK4BOB as Federal Video Tape Co-ordinator to replace John Ingham.
- Agreed there was not unanimous support for a Federal 008 number; and that 0055 numbers were seen as a Divisional responsibility.
- Reviewed Divisional Bookshop activities, aired problems and further agreed the matter of club listings was a Divisional one.
- Observed there was a perceived need for a novice correspondence course and a supplier of good resource material.
- Adopted the 1993 Planning Budget Worksheets, as amended, as a planning basis for 1993. These are based on no increase in the Federal component of subscriptions for 1993. In so doing the Board noted the surplus
- was only 2.7% of gross income.

 Examined a paper from Peter Maclellan on trading policy consider-

- ations and agreed "trading" was not to be excluded from the revision of the Articles
- Adopted in principle both half yearly and three yearly subscription options. The General Manager advised, because not all Divisions wished to introduce the half yearly option, it was impractical to proceed with this initiative.
- The revision of beacon policy was referred to FTAC, with a report requested to the Board's subcommittee, Roger Harrison, for the next meeting.
- The Board resolved to ask DOTC for permission to use special callsign prefixes during international contests chosen by the Federal Contest manager.
- Examined recommendations from WICEN concerned with callsigns and frequencies, and agreed to request an options paper from WI-CEN. Peter MacIellan would then develop options for the General Manager to use when negotiating with DoTC.
- Reviewed a batch of revised Policy Statements and adopted those concerned with Gentlemans Agreements, EMC, Novice Licensing, Third Party Traffic, QSL Bureaux, Narrow Band Modes, Operation of BBS, Intruder Watch, Education and Concessional Membership. The Regulations concerned with affiliated organisations were also adopted.
- Received a paper from Roger Harrison on Amateur Radio magazine policy issues, for further Board consideration.
- Agreed the Public Relations Policy Statement required further revision.
- Resolved to prepare a Standing Order on the release from Board confidentiality by Board members of material before the Board for consideration.
- After a thorough review, resolved that with regard to news releases from the Federal WIA:
 Federal tapes as currently prepared

will be discontinued, this does not reflect upon the integrity and dedicated service of the tape coordinators over the past 17 years; The preparation of WIANEWS will continue and authorised news releases will be made available to Divisions, in addition to the current recipients, by the Secretary.

A release from the Board about these matters will be prepared by the chairman. That release became the substance of

the final Federal tape broadcast over the SEANET 92 weekend.

- Roger Harrison was appointed the Federal Media Officer.
- Noted the Federal Media Officer would process the WIA policy on responding to inaccurate public statements.
- Noted the General Manager's contract calls for an indication of acceptance of options for a second and final five year term by 10 November

1992, and noted his duties will be varied as a result of restructuring; resolved to seek the General Manager's agreement to extend his decision point by 12 months.

- Appointed a sub-committee of the President, Vice-president and Peter Maclellan to progress the General Manager's duty statement revision and contract renewal.
- The Board met formally for almost 15 hours and considered over 30 agenda items. A further 6 lower priority items were carried over to February. In addition to the formal meeting Federal Councillors met informally for 2 1/2 hours. The Board will meet again on 20-21 February 1993 in Melbourne.

tuning screw which allows some frequency adjustment to within the hand. At least a relatively simple way of generating RF energy was available at low cost. Within an intruder alarm. them is a diade detector suitable for use at the microwave frequencies. This could be used to detect energy radiated from another intruder alarm. If the frequencies used by two units were separated by a small amount, then each oscillator would also serve as a local oscillator for the diode being used as a mixer providing an Intermediate Frequency that may be fed to a conventional receiver.

These efforts were well rewarded with a number of contacts being conducted across 30-40 feet in the back yard. Modulation is schieved by impressing a little audio to the voltage supply of the Gunn diode oscillator. The resultant signal is FM with the deviation being determined by the ele of audio. The overall sensitivity of the detection system left a lot to be desired, after all, a loud voice would have the same communication effectiveness?

More recently, with the advent of satellite TV systems, some microwave equipment for receiving signals on the 12 GHz satellite TV band has become available. Could some of this equipment be modified down a bit for use on the 10 GHz band? This equipment consists of a LNC or Low Noise Converter which is fitted at the antenna and is coupled to a tuneable TV downconverter. The signals normally received are FM and are converted to AM TV for feeding to a standard TV set by the downconverter. The improved sensitivity offered by this combination appeared to offer increased possibilities.

Just for the record.... (New 10 GHz record)

Peter J Ford VK3TAF

66 RECAUSE IT IS there.". Edmund Hillary when asked why he climbed Mount Everest in 1953. Such is the spirit encompassed by a small group of amateurs in Melbourne in their pursuit of something different. For some time, this group has been experimenting, testing and rebuilding in an effort to enhance their knowledge of little known parts of the spectrum available. Contacts with others using electromagnetic waves of various frequencies is a common goal. with the ability to establish this over ever increasing distances adding an extra challenge.

Recent articles indicated that the 10 Gigahertz band offered considerable room for experimental activity with virtually no commercial amateur equipment being readily available. Any equipment used would either have to be built from scratch or perhaps some other commercial equipment may be modified or "cannibalised" for amateur use Propagation characteristics were scarcely that of the DX bands or even the traditional VHF bands. Just what are the significant features of propagation in this unknown territory?

Initial efforts to generate energy in this band were confined to simple oscillators using surplus microwave intruder alarms. These devices utilise a Gunn diode in a cavity and oscillate in this configuration at about 10.5 GHz, just above the allocated amateur band. Fortunately, these units have a small

New Receiver

Fortunately at the local club, through the efforts of one of the members, a number of LNCs and downconverters were made available at good anateur prices. A little bit of minor surgery on an LNC with a few tabs of copper strip to lengthen the microstrip tuned lines shifted the tuning into the 10 GHz band. Other LNCs were treated with silver paint with similar effectiveness. As the local oscillator is at 11.2 GHz and the IF is 850-1400 MHz then only the front end needed to be tuned from 12.5 GHz to 10 GHz for the same IF to feed the downconverter.





Max Crews VX3BBU .. "Buccess!

successful back up equipment.

Preliminary tests on the receiving equipment tracking a microwave intruder alarm sitting on the rear shelf of a mobile car showed signals receivable from over two kilometres away. Although the signal had no modulation apart from that imparted by the vibration in the car, at least a better receiving system was now available.

Now that a suitable receiving system was available, thought was again turned to suitable transmitting equipment. The receiving system is designed for FMTV so a matching transmitting system must be arranged. A Gunn diode would FM if the supply voltage was varied with signal. Unfortunately FM linearity suffered greatly when the deviation required by the receiving system was attempted. Better modulation could be obtained if the modulation was applied to a varactor diode mounted in the oscillator cavity with the Gunn diode Microwave Associates provide a Gunnplexer assembly that has the required Gunn and varactor in the oscillator cavity and tuned to the 10 GHz amateur band. As these units were already in possession, then it was a relatively simple matter to build a video modulator to take signal from a video camera and provide correct modulation to the varactor. With a little bit of adjustment and fiddling. good pictures were being passed from one side of the shack to the other.

Again the advent of satellite TV vields further equipment for amateur use. Antenna systems used in the microwave region are commonly parabolic dishes. With true amateur spirit, a pair of small (4 foot) surplus satellite dishes were acquired. Similarly, use of suitable pieces of waveguide feed and radiator were also found.

First Attempt In May, 1992, an attempt was made to establish contact from two points near Melbourne with a two-way video contact. Each party loaded all necessary equipment and at the appointed time. established contact using a two meter liaison frequency. Soon, pictures were being sent and received in one direction. Generator problems caused some concern initially at one site but the low voltage was soon overcome. When a change of direction in the opposite direction was called for, no signals were evident. Tests at the transmitting site confirmed that the transmitter was, in fact, working correctly. As the receiving station could not receive its own signal, it was obvious that the fault lay in the receiv-

ing equipment. Considerable effort was made to isolate and correct the fault over three hours in the cold, wet outdoors to no avail. A certain Irish gentleman had definitely visited us!

After returning to the relative comfort of the shack, it was found that an intermittent connector on the back of the LNC had chosen to become more nermanent. Considerable discussion led to numerous new names for the particular type of connector used.

With the workload imposed upon one of the members of the group. another being temporarily relocated from Melbourne and the wet and cold of Winter, any further attempt would have to be delayed for some months. Weekend work and likely fine weather indicated that Friday, 23rd October would be a good day for the teams to attempt a two-way video contact and make some measurements for possible future work.

Antonnas

From signal measurements made in the earlier attempt, a small horn was constructed to see if sufficient signal would be available over the path and compare it with the four foot dishes. An evening's work and some pieces of circuit hoard produced a horn antenna of 21-22 dB gain. Care was taken so that no solder was on the inside surface of the horn as the lead alloy is an excellent attenuator at microwave frequencies. The inside joints were made with burglar alarm tape as used on windows. This material is an excellent jointing material at these frequencies.

Mai VK3BBU, Max VK3WOD and Peter VK3TAF arrived at Mount Worth, some 15 kilometres from Warragul in Gippsland at about 11.30 a.m. and began to set up the equipment. Jim VK3ZVC and Bill VK3ITW had already arrived at Johns Hill in the Dandenongs. Unfortunately, George VK3ZNE was unable to accompany us this time due to ill health. The dish was quickly mounted on the support frame on the tray of the truck and aimed in the direction of Johns Hill "somewhere over there". When the receiver was connected and tuned to the correct frequency, pictures were immediately seen. A little bit of left-right and up-down with the dish while observing the AGC of the receiver yielded studio quality video from Johns Hill to Mt. Worth on a frequency of 10,310 GHz.

We Did It!

Considering the quality and strength of the received signal using the dish antennas, a second receiver using the small horn antenna was set up. Considerable difficulty was experienced in assembling a supporting camping table. Those devices are definitely not recommended for field usel Again, good signals were received although it became obvious that some polarity rotation of the signal had occurred over the path. This rotation was about 70-80 degrees. In reviewing this much later, it was determined that this was most likely caused by angular terrain in the foreground at Johns Hill and the possible heat path over it.

Remember to leave a three second break between overs when using a repeater.

Having sent video of a hastily drawn OSL, the direction of transmission was changed. This is accomplished by removing the LNC from the waveguide feed and attaching the transmitting Gunnplexer. The returned signal from Mt Worth to Johns Hill was received just as well over the path. For the next two and a half hours, signals were recorded to videotane and attenuators placed in the transmit feedline. Although the original power levels transmitted from the Gunnplexer were 30 milliwatts to the antenna, nower reduction to less than one milliwatt still gave excellent nictures.

During the day, weather conditions were very clear and temperature of about 27 deg C. No unusual bending or ducting of the signals were observed as was any variation in rotation from the 70 to 80 degrees noted above. This was fortunate as a misunderstanding between the two sites had led to the two main antennas being mounted with their polarities at 90 degrees! It was claimed that this misunderstanding had something to do with the type of waveguide mounts used.

Higher Frequencies

As the experiments on 10 GHz had proved extremely successful, consideration was given to exploring the possibilities of covering the 60 plus kilometres on an even higher frequencv. No specific equipment had been taken for this possibility but some devices were found in the vehicles that would allow an attempt on about 500 THz (Terahertz!). A few minutes experimentation and reception of the letter S in morse was confirmed at Johns Hill. This contact was also recorded on videotape. Unfortunately conditions did not permit a two-way contact although it is believed that the Johns Hill group was not able to aim their transmitting antenna with sufficient accuracy. At the conclusion of these tests. the mirrors were re-fastened to their respective vehicles.

After a trip back from Mt. Worth, somewhat punctuated by various squeals of success from the driver, the meeting with the other party at Jim VK3ZYC's OTH relived through viewing the considerable amount of videotape taken, both on and off air at both sites. Consideration is now being given to finding other sites of even greater

separation in an effort to determine iust how far video signals may be sent on this band. An overall "figure of merit" in excess of one billion for the contact was derived by multiplying the distance by the frequency and dividing by the power. A similar figure could also be derived from the enjoyment of the occasion!

As a result of our activity, others have expressed interest in this fascinating area of communication with relatively simple gear that has a lot to be discovered. Thanks are due to many others who , in some way, have contributed, either knowingly or not, to the success of the exercise. No doubt. the increase in availability of equinment as used, will lead to others enjoying the fun and excitement of "doing something different".

The cover photograph and photographs accompanying this article were kindly supplied by Peter Ford VK3TAF.

Complimentary colour processing was provided by BOND COLOUR LABORATORIES, Richmond Vic. for which we offer grateful thanks on behalf of our readers.

A Call to all Holders of a Novice Licence

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amateur radio, why not extend your activities? The Wireless Institute of Australia

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7 to 9pm Wednesday

Product Review — The BAYCOM Packet Modem

By Gil Sones VK3AUI

AYCOM HAVE produced a packet modem in a D9 plug which must be just about the most compact packet modem available. Even more impressive is the fact that it works brilliantly. The Serial Port produces the power supply and the radio just plugs into the DIN connector on the back of the modem.

Software to run the system is on a single disk. The system uses the PC to form up the packets and the modem is just to convert the serial port signals to and from audio. Because the modem is so small and simple there is enough power available from the serial port to run it.

This is a much simpler procedure than the usual TNC setup. A TNC usually is a dedicated computer and modern which converts serial data into Packet audio signals and incoming audio packets into serial data. Another program in the computer handles the serial data and looks after the TNC.

BAYCOM provide a software program which carries out the functions of both the usual packet program and the TNC. Only a relatively simple hardware modem is needed and the PC performs all the processing. A much neater solution.

My normal packet setup is a Paccom Tiny 2 TNC and I use PAKET as the PC packet communications program. The PC is an XT clone.

After finding an adaptor from my 25 pin serial port to the 9 pin serial required for the BAYCOM I was ready to go. The software loaded easily and I set my callsign. The manual revealed that the 5 pin DIN connections were identical with those I had coming from my transceiver. The BAY-COM started and I connected to a local BBS.

Operation was simple with but a few glances at the book and some recourse to the on screen help. The software and the modern performed without a hiccup and were very simple to use. If it was your first attempt then some more recourse to the book and the help file would be in order.

For the beginner or the more experienced who want a simple to use and troublefree system I would recommend the BAYCOM. The small size and simplicity make portable or even handheld operation possible. A Laptop and a handheld together with the BAY-COM make a very compact and portable packet setup. Inst about any sort of PC should

work. Some odd ones and PC emulations may be tricky but then users of such systems know the traps. The program is not memory hungry and can be run in the background if needed.

The instruction book has been produced locally and is easy to use. The original program is from Germany and the book has been translated. However it is easy to follow as it has been very carefully translated and is not like one of those manuals from the east.

In summary an elegant and simple packet modem and system which has much to recommend it.

The modem and software are available from the Australian Amateur Packet Radio Association 59 West-brook Avenue Wahroonga NSW 2076.
The cost is \$190.

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Amateur Radio and Electromagnetic Compatibility

PART 1

H F Rushart VR2AGU **EMC Reporter** 25 Berrille Boad everly INDE HOW 2205

■ ORE THAN 70 EMC reports have been published in AR during the past 10 years. Most reports dealt with one or more subjects from local experience and information obtained from overseas amateur radio publications. Few readers will have kept a complete file of all of these publications in order to have the information at hand, should they experience an EMC problem themselves. Now may be the right time to compile a summary. bringing minor subjects together under main headings.

How old are EMC problems?

EMC problems are as old as radio communication itself. When more than two ships or land stations were using Marconi transmitters at the same time, ORM resulted. The lack of selectivity. using only tuned antenna length, was the reason. Prof Slaby (Germany) and others had to introduce the L-C tuned circuit in order to separate the various operations. That was about 100 years ago. About 70 years ago radio broadcasting and amateur radio operation began in many countries, and at the same time EMC problems were experienced, called BCI. When, about 50 years ago, TV broadcasting was introduced in many countries, the socalled TVI problems became a war between the radio amateur and his neighbours. With the proliferation of electrical and electronic appliances and services, electromagnetic compatibility became a world-wide problem.

which had to be dealt with by international regulations, or coexistence of many operations would have been disturbed

What has been done by those concerned?

The EMC problem is worse in densely populated countries with a large radio amateur population. It is therefore not surprising that American amateurs first tried to help. P S Rand "Laboratory of Advanced Research" Remington Rand Inc. USA produced the famous book "Television Interference" with many contributions published in 1952-54. The writer had several long OSOs with Phil, and was grateful when Phil sent two copies of the TVI book. In West Germany it was mainly DL1BU, and later also DL9TJ, who attacked the problems in association with the professional Electronic Engineers Associations (VDE and DIN) and the Government (FTZ), OST reported in November 1952 the "RFI Bill" PL97-259, introduced mainly by K7UGA (Senator Goldwater) which was a great step forward as soon as the President had signed the document into law. TVI committees in the UK also did a great job in helping the amateurs with a number of excellent publications. There are now EMC conferences alternately in Switzerland and Poland, where experts from many countries meet to exchange experiences and to plan action by their governpean Common Market are laving down standards for electromagnetic compatibility of many appliances and electronic entertainment equipment. The German radio amateur experts requested an immunity level of 10 volts per metre. supported by experts from Poland and elsewhere. The DIN/VDE standards offer only 3 v/m, which helps in most cases, provided the manufacturers adhere honestly to this level (so far, this has not always been the case). Now we hear that the EEC plans to water the standard even further down, because some manufacturers have not yet done their homework. But some standard is better than none at all, as at present in many countries. It is pleasing to see that some manufacturers (German and South Korean) are doing very much better than required at no extra cost! So, nobody can say it can not be done. or it costs too much. The large Common Market in Europe makes it uneconomical to produce, import and sell below-standard equipment, because the EEC can ban such equipment. "Banana Republics" with no EMC standards are likely to receive the substandard electronic entertainment equipment which may be left over.

What is a "Disturbance". and what is "interference"?

It is unfortunate that not only technically uneducated persons, but also radio amateurs, use the term "interference" when they are not to be blamed for EM incompatibility. Legal RF energy transmissions can never cause interference. The other term "disturbance" should be used, when legal RF radiation affects the operation of equipment which has insufficient immunity (selectivity) or any design fault making it incompatible with legal transmissions.

Examples

A radio amateur hears on the 14 MHz band, every 16 kHz, an S-5 signal, which comes from his own TV receiver or the TV set of a neighbour. This is interference, because TV sets are supposed to be only receivers of signals, which are transmitted on allocated TV channels. They are not to be transmitters, operating on frequencies which belong to a different service. One can check the unwanted radiation from TV sets by using a transistor receiver with a long-wave range (popular in Europe). This signal (oscillator barmonics) should disappear at a distance of one metre or less, or one could not operate a hi-fi receiver close to a TV set.

Arcing in power line installations, often observed after several days of dry weather, is another case of interference. Walking along the street with a portable radio, one can usually identify where the arcing comes from. The electrical supply service is usually cooperative, and appreciates, if known, which power pole appears to be the trouble-maker (the noles are numbered). These arcs interfere with TV reception (especially Channel 2) and short-wave reception.

A compatibility problem occurs between a clean fundamental frequency legal amateur transmission and the operation of a hi-fi receiver or a TV receiver, or a VCR. In all these cases we have a "disturbance" (not interference) due to design deficiencies causing a lack of immunity or selectivity. or being too susceptible. The equipment owner should make the manufacturer responsible. The receivers suffer mostly in these cases from front-end overload, or lack selectivity and the ability to handle strong out-of-channel signals, "Disturbance" means that the receiver is to be blamed (not the transmitter).

Should a transmitter radiate too strongly, harmonics which fall on a frequency allocated to a receiver service, then the transmitter operator is responsible. He has to improve his transmitter selectivity (suppressing harmonics) to an acceptable level, to overcome this case of "interference". By using the terms "disturbance" or "interference", one places automatically the responsibility to overcome the EMC problem on the guilty party. It is therefore undesirable to use always the term "interference", which can be quite wrong, and have legal consequences. (In German: Interferenz/Storende Beeinflussung). First, we must keep our own house in order.

When we intend to purchase an appliance (TV, VCR etc), it would help if we could find out from an amateur friend how well his appliances behave as far as EMC is concerned, noting make and models. There are substantial differences which often have nothing to do with the price. It was revealed by the Consumer Association in Germany (Warentest: Tested wares) that the type approval number connected with EMC performance was not even a guarantee for meeting the test requirements. We are not likely to get a written guarantee from a sales manager to take the appliance back if it turns out to be impossible to improve the EMC rating and performance. EMC performance seems still to be a matter of luck. Some TV sets pack up at 0.1 V/m in the test cell, whilst other models from other manufacturers can take over 50 V/m. Not all have done their homework, but the EEC market will force some improvement to be made we hone!

EMC Test: the first job after obtaining or building a transmitter

We should not leave it to neighbours to find out what is being radiated along which path from our new transmitter (transceiver and/or amplifier), Instead, connect the transmitter via a short well shielded piece of coaxial cable to a shielded dummy load, and run the transmitter with a two-tone oscillator on phone or with dots on CW, using the maximum power the maker recommends. With an absorption frequency meter (Fig 1) or a dip meter (GDO) check the leaking RF along any attached cable (mains, power supply, mike, speaker, headphone, transverter, monitor-scope, computer etc) at the control knobs, dials, gaps between the chassis and the bottom cover or lid. and at attached SWR meters. An absorption type frequency meter (tuned LC circuit. Ge diode and 50 uA meter can detect signals as low as 10-20 mV. A dipmeter also tuned to the transmitter fundamental and to the harmonics can do the same. Any attached cable showing this order of leakage will have to be wound through a ferrite core of suitable size using 10 or more turns. Low O and high µ ferrites like those used in TV line frequency transformers are suitable. Low pass filters, with high stop band attenuation at least to 500 MHz, should be attached directly to the transmitter output terminal (no coax cable between transmitter and filter). That is about all we can do with

plus final amplifier), hoping the manufacturer did his part



Figure 1 — Absorption Type Frequency

Those of us who are not only "anpliance operators" but "radio amateurs" in the original sense can do as much as the technology provides. The high RF power carrying components should be either confined by an unpainted perforated metal box on top of the chassis, or the cabinet internal edges should be unpainted (front panel, bottom and top cover and chassis) and a sufficient number of screws must be used to avoid RF leakage at the cabinet edges. The higher the frequency, the closer must the screws be placed to seal the cabinet (3 cm at 435 MHz).



The chassis floor and the front panel must not become part of the high RF current carrying path from the valve or the Pi filter components (Fig 2) or shielding becomes impossible. These components should be interconnected by wide copper strips and not by thin wires (reducing the unwanted circuit inductance)

Fig 3 shows how a vernier dial can be attached to the Pi filter variable capacitors C1 and C2. An insulating flexible coupling should be used to prevent high RF voltage from the capacitor feeding through the front panel to the vernier dial, making it "hot" (ie leaking RF power). The RF choke Ch 1, should have 90 µH inductance and

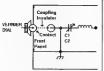


Figure 3 — Vernier Dial Connection

must be wound on a coil former of low RF loss material like steatite ceramic. Plastic material which could melt when warm, or has high RF losses, could cause serious problems. RF chokes of the Christmas tree type can also cause difficulties, because each coil has its own parallel and series resonances. making the choke ineffective perhaps at a desired operating frequency, A 90 uH single layer choke wound on 2-3 cm diameter former works fine from 3 to 30 MHz. Fig 2 shows choke Ch 2, because it has been found that choke Ch I and the feed-through canacitor on the chasis still allow too much RF to escape at the Vp terminal, when a separate HT power supply is connected via a cable to the amplifier. This choke is wound on a low O ferrite rod of 12 mm diameter and 20 cm length. using 30 turns. C4 is one more bypass capacitor. These are some fundamental considerations the home constructor should not forget.

How well does the industry deal with the problem of RF leakage?

DL1BU published a very detailed paper in "CO-DL" magazine No 12/1982 testing several popular commercial power amplifiers with calibrated professional equipment. The table (Fig 4) shows the relationship of watts, dB above I mW, power in watts, dB above 1pW (pW = picowatt = 1012 watt), terminal voltage across 50 ohm and dB above 1 µV.

The regulations require the reduction of harmonics by 40 dB for transmitters of over 25 watt, operating on short waves, and 60 dB reduction is called for VHF/UHF transmitters, A 100 W transmitter operating on short waves is allowed to have 10 mW and a VHF transmitter 0.1 mW of harmonic power at a 50 ohm dummy load. The operating regulations require very severe



Figure 4 — Power Comparison Table

harmonic nower level reductions if TVI has been caused by transmitter harmonics. Now the harmonic level must be reduced to 1.25×10^9 watt = 1.25nanowatt. The level of 1.25 nanowatt is also 31 dB above I picowatt. At a 50 ohm dummy load this power level gives 250 µV (microvolt). In the case of a 100 watt transmitter the level amounts to 140 dB (pW) or 71 volt at 50 ohm. A 40 dB harmonic reduction is no longer good enough, and we have now 140-31 109 dB. A power amplifier running 750 watts requires a harmonic reduction of 118 dB, which takes some doing!

A well designed low pass filter could provide the required harmonic reduction if the filter is directly attached to the amplifier cabinet, provided the cabinet and the attached cables (from power supply, mike, key, monitor scope, SWR indicator) are practically free of RF and not leaking. The spectrum analyser photos show what we can expect from commercial RF power amplifiers.

Fig 5 shows the level of RF power measured at the cable which connects the Drake T4XC transmitter to the separate power supply. The fundamental and harmonics over 500 MHz are shown, when the transmitter was operated at 14 MHz

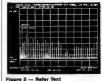


Fig 6 shows what happens when the power amplifier TL-922 is driven by the T4XC and a two-element quad antenna is used. The amplifier adds 8 dB of power increase to 78 dB (pW). A similar result, only 10 dB lower, was found when the measurement was carried out at the coaxial antenna cable near the transmitter. It shows that with this level of leaked RF outside the feeder coaxial cable, an added low-pass filter cannot improve the harmonic radiation to any marked degree. Under these conditions the antenna practically no longer radiates harmonics, but the antenna cable and transmitter cabinet do.



Fig 7 shows what happens in the case of a transistorised amplifier IC-701, operating with 100 watts at 28 MHz. The harmonic power level measured at the connecting cable to the separate power supply is between 40 and 60 dB around the 200 MHz TV band; this means 50 dB (pW). This leakage power is also found on the cabinet and antenna cable. Similar results were measured on the amplifier L4B running 700 watts on 21 and 28 MHz. My own experience with the HL12U 435 MHz amplifier confirmed that plenty of RF is at the cable to the power supply and also the heat-sink-case (being anodised) does not make any contact with the bottom plate, so leaks RF.



Experience shows that it does not help to place a low-pass filter between the transceiver-driver and the power amplifier. The PA generates all the harmonics regardless of an additional filter. If the transmitter cabinet itself does not radiate substantial harmonics already, it could help to place two lowpass filters in series directly at the PA output terminal.

(to be continued)

with an FET, an NE602 IC and a crystal plus a few incidental components to shift the LF signals to the 80 metre region. The coils used could be small RF chokes. See Fig 2 (on p 16) for the circuit. If the FET tends to oscillate try a

2n2 canacitor across the 680 ohm source resistor.

The output transformer is wound on a TV balun core. An FT50-43 toroid could be used if desired.

The crystal used can be anything which gives a suitable IF in the region of the 80 metre band. For example a 4 MHz computer crystal will tune backwards in the 3.8 to 3.9 MHz region. A 3.579 colour crystal will work but calibration will require some mental gymnastics. For those needing other circuits and

details of loops then the articles in AR by Lloyd Butler VK5BR are a good start.

UHF Collinear Antenna From near the bottom of the spec-

trum we now go to a couple of stops from the top. A 28 element design for 2.4 GHz was published in the JA magazine The Radio Amateurs Magazine in their August 1992 issue. The author was JA7YTB.

The design is interesting in that 5/8 wavelength elements and 3/4 wavelength elements are used. The feed is the old Zepp feed also used in the Ipole and Slim Jim designs, However the end feeding of so many sections is quite a feat.

The design is shown in Fig 3. The antenna would appear to have been bent up out of a length of rod or wire and then slid into a fibreglass tube radome for support, SWR could be adjusted by the relative spacing of the quarter wave matching section or the diameter of the quarter wave spike.

Scaling the design to both 1296 MHz and 432 MHz should be possible. Reducing the number of collinear sections should also be possible and may also make it easier to achieve a gain figure consistent with the number of sections. I well remember at antenna gain contests that some Yagi builders got more gain from only half their monster antenna than from the full monster. A graphic demonstration of diminishing returns.

With large collinears the problem to be overcome is to excite the whole an-

Technical Abstracts

Supple VEHILLE

Getting The Low Down

rEW ZEALAND amateurs have an allocation from 165 kHz to 190 kHz and have been conducting interesting experiments there. The band presents many challenges with the antenna system being the major hurdle. Equipment also represents a challenge as it must be home brewed. Receiving is possible with many amateur transceivers but the provision of coverage is just an afterthought to the makers. Locally John Adcock VK3ACA has

been experimenting for some time and has an experimental licence. The experimental licence callsign is AX3T35. The frequency allocated and used by John is 196 kHz. Recently John VK3ACA has been

assisted in conducting test transmissions on 196 kHz by Don VK3BDJ. The tests have consisted of a series of transmissions from Don's OTH at Gordon near Ballarat. These transmissions have been heard in New Zealand and interstate. Antenna efficiency is a major

problem at these low frequencies. Noise is also a problem as many switching power supplies and other devices have outputs in the region. In New Zealand tests have taken

place on 166 kHz and 181 kHz. These

frequencies being chosen to suit the scene in New Zealand. Use of 166 kHz presents some

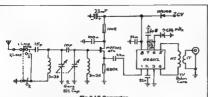
problems as the third barmonic must be very well suppressed to avoid interference to 500 kHz which is an important marine frequency. To achieve this Andrew Corney ZL2BBJ built and published the design of a low pass filter in Break In August 1992. The design is for transmitting but for receiving it would minimise Broadcast station breakthrough and lower rating components could be used. The filter is shown in Fig 1. The 3

dB point is at 254 kHz and it is better than 50 dB down at 500 kHz. The original used pot cores and 500 V capacitors to handle 100 W of RF. For receiving small ferrite toroids or even RF chokes and small "Styroseal" canacitors will suffice.

Receiving Low Frequency can be a

problem but a simple converter can be used to allow the use of an HF receiver as an IF. Andrew Corney ZL2BBJ has designed a suitable converter which was published in Break In September 1992.

The converter uses an old 2 gang broadcast variable capacitor together



tenna. If the end has only a fraction of

the power fed to elements nearer to the feed both gain and pattern suffer. In any event JA7YTB has produced an interesting design which could be

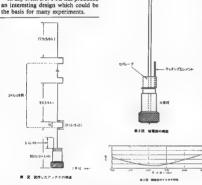


Fig 3 28 Element Collinear

Microphone RFI A good and

RF feedback has been experienced by some users of desk microphones. These microphones often contain a preamplifier and this is often where the

problem lies.

Multiple DC and control lines to the microphone for PTT and other functions can also pick up and couple RF into the microphone amplifier. A shack hot with RF is a prime cause of trouble and should be tackled first.

A good and efficient earth is an excellent first step. If your earth is still at some RF potential at the rig, other measures may be needed. To bring the equipment to RF ground you can attach to the rig grounding point a series of quarter wave wires for all the bands in use. The wires are run around the room around the skirting or under carpets. Do not let any one touch the ends as they could be at a high RF notential. For those still experiencing difficulties then a series of articles and items in QST may help. The original article was in QST May 1988 and was followed by Tech Correspondence in March 1992 and Hints and Kinks in July 1992.

Microphones suppressed successfully were an ICOM IC-SM6 and a Kenwood MC-80 together with a homebrew microphone project.

Principally the cures involved bypassing all wires entering the mic. In particular the PTT lines and the DC supply. Internally beads and RF chokes were also used.

RF chokes and ferrite beads were used to filter supply lines together with added bypasses. Audio leads must be treated carefully so as not to affect the audio frequency response or risk inducing hum. Toroids should be used in preference to solenoid style chokes to avoid inducing hum. Similarly RF bypasses in audio leads are a tradeoff between RF1 and frequency response.

The QST references are a good guide for anyone faced with the problem. Particularly if it is in either of the two microphones mentioned. Remember that reducing the RF in the shack is the first step even if it is not a complete cure.

Have you advised DoTC of your new address.

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Mini Equipment Review

The MFJ-247 SWR analyser with LCD frequency counter

Hon Flatter VR30M

N THE MARCH 1992 state of Amateur Radio, I reviewed the MFI-207 SWR analyser. At the conclusion of that review, Imentioned that MFI would soon be releasing an upgraded version which would readout. The MFI-247 is that mode! The digital readout can be used in two ways. Firstly, it will read the frequency to the the internal oscillator of the SWR analyser is tuned, but it can also used as an external frequency counter which is useful en to 150 MFI.

However, for those who haven't got the original MFI-207 review handy, let's take a quick look at just what an SWR analyser does. The oscillator in the analyser is actually a low-power transmitter which is connected to the antenna, the feedline, the ATU, or a combination of all three, to determine if a 50-ohm match exists. A bridge circuit is coupled to the front panel meter which is calibrated in SWR at the following points: 1, 1, 2, 1, 5, 17, 2, 25 and 3, which is at about three-quarter scale on a scale length of about 25mm.

The frequency range of 1.8 to 30 MHz is covered in five ranges, as MHz is covered in five ranges, as the MFJ-207, but where the latter offered full coverage between these frequencies, the MFJ-247 has a few gaps. The actual coverage is 1.8 to 2.9, 3.2 to 5.3, 6.5 to 11, 12 to 21 and 18 to 30 MHz. In catual practice there is some slight extension on this coverage both above and below these frequencies. However, it could be a limiting factor for commercial users trying to tune an antenao an an RFDS channel in the 5.5 MHz region.

With the counter built in, the 247 is slightly larger than the 207. It is 101mm wide as against 63mm for the 207. At



The MFJ Model MFJ 247 Antenna Analyser — Front View.

the same time, the depth is actually 12mm less. External connections are an SO-239 to connect to the antenna under test, a BNC connector for external input to the frequency counter, and an external DC power input which is still not labelled for polarity. Internal battery power has been changed from a nine-volt transistor type battery to six AA cells. It's still necessary to remove eight screws to put new batteries in. Current drain is about 170mA, so the use of alkaline batteries as recommended by MFJ would certainly be a good idea.

The MFJ-247 in operation

I put the 247 into use with the several HF antennas available around the shack, and the results were most interesting. The frequency counter allows you to set the analyser to your exact operating frequency. However, I found that, in most cases, the analyser gave very different measurements from normal in-line SWR meters. The analyser will get you in the ball park, but you will still need your normal SWR meter to get your antenna tuned to your operating frequency. The frequency counter itself is a rather nice unit. With a whip antenna connected to the BNC input, and the counter input selected to external, I could easily read the frequency of my two-metre equipment. The error at two metres was about 1.5 kHz, but I expect the counter time base could be adjusted to put this right.

The Instruction Manual does not mention that the time base uses a 10 MHz crystal with .01, .1, 1, and 10-second gate times, but these points are covered in the advertising brochure.

Instructions on the use of the analyser are good. You won't have any trouble here except in trying to determine the polarity of the external DC input; however, I will let you into a secret. The tip of the oblus is positive.

secret. The tip of the plug is positive.

After a bit of use, I noted a few strange quirks with the 247. Occasion-





Rear View of the MFJ-247.

ally, the counter would lock up and refuse to read the operating frequency of the analyser. The only way to overcome this was to switch off and start again. The first review sample was quite bad in this respect, so I exchanged it for a second one which was much better.

Also, MFJ has dropped the vernier from the tuning control on this version. I feel that a six-to-one drive would novide much smoother control.

The MFJ-247 conclusions I would have to say that MFJ has a

great idea here. However it is let down by a few details that could be easily corrected with little or no extra expense. The instruction manual should have more information on the counter operation.

Even so, I would like one for my shack, and at a retail price of \$409.20 it would have to be good value. Our MFJ-247 was supplied by

Stewart Electronic Components, 44 Stafford Street, Huntingdale, Victoria

tion of the Morse key does slightly better. It acknowledges the American straight key but prefers the solid arm GPO type of key. It includes a schematic circuit for a practice tone oscillator based on a 555 timer IC.

The last chapter on high speed Morse and automatic keys provides a better description, but is still information for newcomers to demonstrate what is available.

The chapter on the examination options applies to Britain and so should be ignored by Australians.

The sending exercises are where this book shines. It breaks up the alphabet and picks various letter groups to practise. Then having completed these groups, text using all letters is given. Finally numbers are added. Exercises also give the time required for transmitting at different speeds. The letter groups have been chosen using a common pattern in Morse. Also letters have been combined so that if spacings are not correct quite different letters or words will be heard, eg MIZMI becomes These exercises would make good

receiving practice. Words like REPEAT and REPENT will sort out any tendency to journalise before it could become a problem. The exercises form 13 of the 28 pages in this book and are worth every page. No book can provide receiving prac-

tice which is the most basic skill in Morse code. It can only point out sources such as scheduled practice sessions on radio or recordings. Again this book is aimed at the British reader and only lists British sources.

The aim of the book is to interest people in the Morse code as a new and different language with which one can communicate world wide. I wish them well but feel that the book is too small to satisfy the interest generated.

There are many amateurs around the world who find it very relaxing and only wish that others could share this enjoyment. What must be the best example of Morse code operation to some is shown in an extract from the book. "In contact with an American amateur, he had commented on his Morse and the American replied that he was in an iron lung and keying the transmitter by blowing down a tube."

BOOK REVIEW

The Morse Code for Radio Amateurs

Servette Sallen Edited by George Benbow G3HB Published by the Radio Society of Great Britain (RSGE) Reviewed by Evan Jerman VK3ANI



THE MORSE CODE for Radio Amateurs was first written in 1947 by Margaret Mills G3ACC; the first woman to obtain a transmitting licence following the war. In 1991 it was revised and had its scope extended although the majority of the content is still practice exercises.

This book was written for those who have no experience of Morse code and are seeking to pass the amateur examination.

The chapters that are not code exercises are limited in their scope perhaps to match their size. The history of Morse code is one page. So too is the first chapter which outlines some of the advantages of Morse code. A descrip-

More on Interference Cancelling, and a New Circuit

Lloyd Butler VK5BR 18 Ottawa Ave Panorama SA 5041

Introduction

NA PREVIOUS article (AR September 1992) I described an Esptember 1992) I described an which operated by combining the sigal from the main antenna with the signal from an auxiliary antenna. To achieve cancellation, the amplitude and phase of the auxiliary antenna signal was adjusted so that the interference components from the two antennas were cancelled by the combination.

The main complication in this type of system is the circuitry needed to adjust relative phase of the two signals over the complete range of 360 degrees. In the previous article, I submitted a circuit which made use of resistancecapacity (RC) phase shift networks to achieve this adjustment. The system as designed worked well, but the number of transistor circuit components needed to interface these networks turned out to be greater than I had first anticipated. This has led me to search for a simpler method of controlling the phase or at least one with less components.

I now introduce a new circuit which makes use of the phase shift that occurs when a tuned circuit is set off resonance. This gets back to the type of phase control used by Drew Diamond in his early circuit (AR, October 1976). However, Drew's circuit required the adjustment of a matching unit consisting of two variable capacitors and a rather large inductor on which taps

had to be set. Just how much phase was achievable by this circuit was also not defined. My new circuit, despite its simplicity, can be adjusted over a full 180 degrees of phase shift with a single tuning control. Of course, once this is achieved, the remaining 180 degrees is accessible by operating a phase reversing switch.

The Phase control

In principle, phase adjustment is very simple. If a signal is loosely coupled into a parallel tuned circuit, the phase produced across the tuned circuit can be easily shifted over a 90-degree range as the circuit is tuned, from partway down one side of the resonance curve, through resonance, to part-way down the other side. The effect can easily be demonstrated by loosely coupling a signal generator into a tuned circuit and simultaneously monitoring, with a dual trace CRO, the signal generator output and the signal across the tuned circuit. The precise amount of phase shift for a given frequency offset can be derived from the curves (Figure 1) reproduced from Terman.

To achieve 180 degrees of phase shift, we use two identical tuned circuits with their tuning capacitors ganged together. The two funed circuits must be loosely coupled or separated by an amplifier isolating stage. The 90-degree shift in the second circuit is additive to that in the first circuit, giving us 180 degrees of range. Of course, the amplitude also varies across the resonance curve. In practice, this is no problem as the phase and amplitude controls have to be progressively adjusted, in turn, a number of times, until the interference

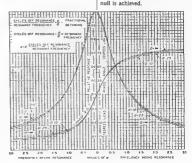


Figure 1 Resonance Curves Showing Phase Shift (from Electronic & Radio Engineering — Terman).

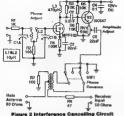
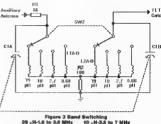


Figure 2 interference Cancelling Circuit C1-2 Gang 15 to 280 pF, or similar L1, L2-Miniature RF Chokes 10 µH tunes 3.5-7 MHz T1-11 Terns quadfiler wound on Amidon FT50-73m Toroidel Core

For the new circuit detail, refer to figure 2. In this diagram, L1-C1A and L2-C1B are the two tuned circuits coupled by resistor R2. Inductors L1 and L2 are identical and capacitors C1A and CIB are a ganged variable pair. In practice, tracking of tuning does not appear to be critical and hence there is no need to be too concerned about precision matching of the inductors. The circuit as shown, runs with a fairly low O. and almost any identical pair of inductors can be used provided they are selected with the right inductance for the frequency concerned. Matched aerial and RF coils from an old valve receiver can be put to good use here. In this case, the primary winding of the aerial coil can be used to couple the auxiliary antenna instead of using coupling resistor R1.

figure 3) are miniature RF chokes which can be purchased from electronic stores for about one dollar each. These are very convenient because they are no larger than a resistor or small capacitor, can be supplied in precise values of inductance and save the effort of having to wind the coils. The inductance value (10 µH) shown in figure 2 allows tuning between the 3.5 and 7 MHz bands. The resonant tuning range is greater than this, but a tuning overlap must be allowed for phase adjustment either side of resonance at the extreme ends of 3.5 and 7 MHz. For 1.8-3.5 MHz we can use 39uH, for 7-14 MHz - 2.7 uH and for 14-28 MHz -

Inductors specified in figure 2 (and



30 pH-1.3 to 3.0 MHz 10 pH-3.5 to 7 MHz 2.7 pH-7 to 46 MHz 0.68 pH-4 to 28 MHz 0.68 aH. If complete HF band cover- er feeding the 50 ohm reco

age is required, a four-pole twoposition switch can be used as shown in figure 3.

Interface & Mixing Two transistor stages follow the

phase shift tuning system. FET stage V1 provides high input resistance to prevent loading of the tuned circuits and provides voltage gain which is needed in reserve in the system. Emitter follower stage V2 provides a low source resistance to drive the receiver input via the mixing circuit. Potentiometer RV1 is used to set amplitude in adjusting for interference null. The potentiometer must be a non-inductive type (not wire wound) with preferably a tapered resistance characteristic to improve adjustment resolution when set near minimum. If a tapered pot is not available and difficulty is experienced in adjusting near minimum setting, the gain of the amplifier can be reduced by reducing the value of resistor R3 or providing a switch to connect in a lower value. The final component in the phase control chain is switch SW1. This reverses the phase of the auxiliary signal to extend the 180 degrees of phase adjustment to 360 degrees. The circuit around transformer T1 is

similar to that used in my previous system. It is balanced so that minimal amplified auxiliary signal is fed to the main antenna. This is necessary to prevent feedback via the two antennas, and instability in the system. To simplify the circuit, the matching transformer feeding the 50 ohm receiver input in my previous system has been omitted and resistor R8 has been added to achieve the correct match, this adds an extra 3dB loss to the inherent 3dB loss already in the main antenna circuit and caused by the balancing system. On the HF bands, noise picked up by the antenna normally be a problem.

Transmit-Receive Facility

For the DX listener, Figure 2 in coniunction with Figure 3 makes up a complete system. However, for amateur station use, extra circuitry is required to switch out and provide protection for the interference cancelling unit when transmitting. The switching and protection circuit shown in figure 4 is similar to that used in my previous system. This has again been included to make the article complete. Relay A is operated on transmit by normal contacts of the TX/RX relay in the transceiver. On transmit, relay contacts A2 and A3 switch out the balancing and mixing transformer and connect the transceiver direct to the main antenna. Relay contacts A1 disconnect the auxiliary antenna and earth the auxiliary input. Diodes across the interference cancelling input and output circuits provide additional surge protection.

Merits of the New Circuit

Performance of the new unit is much the same as my previous unit, but it is

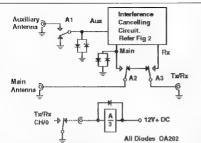


Figure 4 Transmit-Receive Switching

assembled with less components and has less controls to adjust to set up for interference null balance. In the previous system, the input tuning had to be peaked up, one of four phase quadrants had to be selected, and phase and amplitude controls had to be trimmed. In the new circuit, there is only a twoposition phase reversal switch with phase and amplitude controls to be trimmed.

In the previous unit, a tuned input from the auxiliary antenna was found to be necessary to prevent cross modulation from local broadcast stations and other signals which caused "birdies." In the new unit, the input tuning system combines this function with phase control. While the tuning might be set a little off resonance, it still provides rejection of out-of-band signals.

To set for a balance, the phase and amplitude controls are adjusted for lowest noise, one after the other a number of times, until an interference null is achieved. If a null is not found, or the null is not very definite, the phase is reversed with the reversing switch and

the procedure repeated. For further details on the sort of results which can be achieved, I refer you to my previous article (reference 1).

Summary

A new interference cancelling system, using circuit detuning for phase adjustment, has been described. It requires less components and, in operation, is easier to adjust than my previous system using RC phase shift circuits. If you have a local interference problem and are interested in a cancelling system, I suggest you give this circuit a try.

References

- Lloyd Butler VK5BR An Interference Cancelling System for Your Receiver or Transceiver — Amateur Radio, September 1992.
- Drew Diamond VK3XU A Method of Reducing HV Power Line Noise — Amateur Radio, October 1976.

Help stamp out stolen equipment — keep a record of all your equipment serial numbers in a safe place.

Info on Rotators

19 Park Avenus Rosslyn Park SA 5072

FTER THE TH6 went up. I had no rotator, so the rotator upipe was extended to the mast foundation, resting on a steel plate and sitting in a hole of a jarrah block, all bolted down. With two cyclone pipe fittings and two short lengths of suitable pine, one was pinned down by a 1/2" U rod 9" long, the other acted as a pointer. Both pipes were able to turn inside the tower legs. When not in use. I slid a long smaller pipe inside one so the coax could not get wound up. My SH rotator has been in use four years. bolted to the foundation. I still use a pointer pipe, which is roped at times to take any strain off the rotator.

My 18/24 MHz two-el yagis at .075 spacing on one 8 ft boom has a 22' length of tube mast sitting inside a 6' length of 2" pipe. By slotting the of 2" bid of 1/2" rod. By lifting same with my hands, they give me LP and SP to Europe and America. As simple as that.

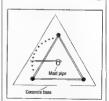


Fig 1 Tap View of the tower depicting

A Test Load for the 20 Amp Power Supply. Ideas for the Experimenter

How to get rid of around 300 watts. VK5BR has an answer.

Lioyd Butler VKSBR 18 Ottawa Ave Panorama SA 5041

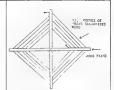
STANDARD POWER supply for many transceivers is 13.8 volts at a maximum load of 20 amps. Radio Amateurs often build their own 20 amp regulated power supplies and various designs for these have been described in past issues of Amateur Radio (References 1 and 2). My own version of such a supply based on these designs was recently assembled but a problem seemed to emerge. How does one test such a unit to ensure that it can safely deliver 20 amps and how does one check its regulation? What is required is a 0.7 ohm resistor which can dissipate 276 watts. Just where does one get one of these ?

The solution was found in a coil of IS SWG gabanized from whe which was purchased from the local hardware shop for some other project around the home. The resistivity of iron is around eight times that of copper and 17.5 metres of this wire was measured to have a resistance of one other. I decided to start with one ohm so that the load current would initially be 13.8 amps. I was a little dubious about puting the full load on the supply until I had first had a look at temperature rise in the heat sunks at the lower power.

To check the value of wire resistance, a digital multimeter was used. This gives a more precise reading than an analogue meter, although the latter could be used if read with care.In any case it is advisable to check the calibration of the instrument against several one ohm resistors which can normally be obtained from most electronic stores. Modern resistors can be relied upon to be very accurate (if operated well below their rated power). In measuring resistance the test leads were clamped tightly to the galvanized wire so that the joint did not add appreciable resistance error. Earth jointing connectors, used in power wiring, were put to good use for this purpose.

The galvanized iron wire was wound on a frame made from two 133 cm lengths of wood crossed at right angles (See Fig 1). Holes were drilled in each leg of the frame at various intervals and the wire was wound in a spiral through these holes until the wire ran out.

Mounting the wire test load on a frame made it more convenient to use adjacent to the test bench. I had considered running the wire down the back yard and back again or fitted to the back Fence. There is nothing wrong with doing something like that, but I decided that it might be a nuisance if I needed to use the load for extended periods.



Pigers 1 Test Load — 15 Test Load wound on wood frames. 17.5 metres gives around 1 ohm. This can be tapped back to 6.7 mm.

To connect the test load to the power supply, heavy copper wire leads were used so that negligible resistance was added by the connection. Of course the power connectors were again needed. For full load, the wire was ultimately tapped down to 0.7 ohm as measured at the end of the leads connecting to the power supply terminals. By measuring there, any connection resistance is included anyway.

At full load current of 20 amps, the dissipation in the wire is about 20 watts per metre (or .22 watts per cm) and the wire is just mildly warm. Of course a low temperature rise on load is important. Based on the temperature coefficient for soft iron, a rise in temperature of as much as 20 degrees centigrade would increase the resistance by 12%. The power supply worked out fine once I had corrected an instability fault which initially showed up at full load. Without the test load, the fault would not have been detected. Regulation was measured as 0.35% which I considered acceptable. The galvanized wire had done its 10b. Perhaps someone else needs to test a supply and can make use of this cheap and simple idea

References

- Denzil Roden VK2BXF "The Even Simpler Regulator" — Amateur Radio, January 1980.
- Des Greenham VK3CO "13.8 V Regulated Power Supply" — Amateur Radio, May 1983.

The DSE Commander Mark 1 "Thoughts and Experiences"

PO Box 554

Introduction

VER THE PAST FEW years I have had a number of radio contacts via the local two-metre repeaters regarding people's problems in getting their Commander radios operational. The latest OSO was with Mike VK3ATB whose problems seemed to be similar to those that I had encountered. Evidently there was an emerging pattern of consistently occurring problem areas in this radio. I felt the experience that I had gained while finding solutions to the problems in my own set, and others that I had worked on could benefit other operators. I suspect there are DSE Commanders out there collecting dust which could well be fixed by using the additional information I have gathered.

In central west New South Wales a lot of interest has been shown in building this popular DSE kit. The earlier versions — Version 3, for instance — of these radios have worked better than the later versions — Version 6. If constructors had taken their time and followed the construction details methodically, fewer problems were experienced. However, final alignment constructors with of the new access to basic test gear such as a CRO, frequency counter etc. to seek out somebody who is adequately equipmed.

Walter Field VK2NNF decided on a bulk purchase of the kits for the local radio club provided I would carry out the alignment on any sets constructed. As things turned out, some kits showed a severe design fault, the solution to which removed any tendency of the same problem occurring in others. The modifications are numerous, but I believe they offer a worthwhile improvement to the performance of the radio. The aim of these modifications is to take the control of the control of the control of the active a result which is stable and

All of the following modifications were applied to at least three radios to verify the results.

Modifications

The Rx audio amp suffered various instabilities ranging from motorboating to added hiss. If your radio is an early kit (Q11 is BC337 and Q12 is BC327) then you may not have experienced this problem. The later kits substituted BC639 for O11 and BC640 for Q12. A stabilising network consisting of a capacitor and resistor in series is usually connected to the output of IC audio amps. Adding a series network of a 47 nF capacitor and a 2.7 ohm resistor connected to the output of the audio amp is useful in eliminating troublesome supersonic oscillations. The component values are not critical in this application, but be sure to keep the leads reasonably short. I connected this network underneath the PCB from the junction of R47, R48 to ground.

The Tx audio had been noticed to be somewhat thin, with a lack of the lower frequencies below 1000 Hz, as well as exhibiting overall general distortion. I altered the Tx audio frequency response to be 6 dB down at 300 Hz. by changing C57 from 2.2 nF to a 5.6 nF greencap. The main cause of the audio distortion is severe peak clipping in the audio clipper. The problem may be caused by the supplied Carol microphone having a higher sensitivity than originally intended, or else by my habit of talking more loudly into the microphone than is really necessary. A 1 KO resistor in series with the microphone signal wire will reduce the microphone sensitivity and loading. The feedback pair mic amp has a low input impedance. Also a bias error was causing negative clipping before the audio clipper. If you change R53 from 560 to 680 ohms, the collector of Q14 will go from 2.5 to 4V DC, and this clipping will not

The heatsink of the Tx Driver O21 runs very hot - MUCH TOO HOT! Paul Bell VK1BX suggested this situation arises from excessive drive as indicated by high collector current. The collector current of Q21 is high and sometimes it exceeds the manufacturer's maximum value of 400 mA. I have had one case of a blown driver. and another where the pcb was badly scorched. The easiest way to reduce the drive is by removing C88. This will result in a more reasonable current of 250 mA and a cooler heatsink. After reducing the drive, the power output is now low, but it can be restored by making the following changes: Rewind L23 onto a 17/64" drill bit and 1.26 onto a 13/32" drill bit using the same wire type and the number of turns as specified with the original kit. The change in size of L23 will result in a better match between the driver and the PA stage. Altering the size of L26 causes a change in output power, so I tried variations in coil size until maximum output power was achieved. Replace RFC5 and RFC6 with chokes similar to RFC3 and you will pick up one watt in each case. Later kits have added L31 and C175 to reduce Tk harmonics. I found the extre filtering was causing a loss of two watts of output power. I didn't determine if the filter was too low in frequency or if L31 has wire which is too thin for the job. Try L31 with thicker wire, but avoid using tunned copper wire has lower losses in RF circuits (the enamel keeps the wire surface shiny) and is nearly as good as silver-plated wire. In my situation in the bush I returned to the original early kits and left out L31 and C157.

After a few years of use, my Commander's voltage regulator QI, Q2 would not turn on. It relies on a leakage path created by RI. This is a sloppy start-up circuit. A sure-fire circuit can be incorporated by connecting a series combination of a 4.7 K and 1 K resistor from the emitter of QI to ground. From the junction of the added resistors a diode (IN4148) goes to the base of Q2 with the cathode end towards the base. Remove RI from the circuit.

The most difficult problem I encountered was in a radio owned by George VK2GAW. The carrier was okay, but in use as the Tx stages warmed up an additional modulation would occur which ranged from geiger counter like clicks to a severe roar which would mask the voice modulation. I have seen other radios with this problem to a lesser extent which only have the clicking symptom. The effect is more severe if the antenna has an SWR mismatch. I stumbled across the fact that a 10:1 CRO probe connected to most places on the radio circuitry would show up a 20 MHz trace on the CRO. The phantom oscillation would drop out if L9 was detuned, giving little output power with this situation. This discovery clearly demonstrated the problem. Cutting the wire link between 1.29 and C126 (the Rx input from the LPF) made the Tx stable. Altering the input tap on the L2 tuned circuit by altering the ratio of C123/C124 also had the same effect. The fix is common to both transmit and Rx RF amp instabilities.

Another major problem can be a tendency for the Rx RF Amp (Q6) to readily break into oscillation. I initially lived with this problem by slightly detuning the coils around the RF amp, but while investigating the above TX instability I was forced to modify the tuning capacitors across L2. This renders the Rx RF amplifier totally usable because of the higher circuit gain by reducing the damping on L6 and the subsequent Q increase of the tuned circuit. A new Rx RF amp retaining the BFY90 transitors was designed, which still maintains the original RX sensitivity and adds improved front end selectivity. The details of this new Rx RF amp are as follows:

Remove R12, R13, R15, C13
Change C123 from 22pF to 6.8 pF
All of the following modifications are
made to the underside of the PCB using physically small components and
the shortest path:

Connect a 12 pF capacity across L2 primary.

Connect the emitter of O6 to

ground.

Connect a 100 K resistor between the collector and the base of Q6.

Connnect a 1 K resistor from collector of Q6 to the cold end of L3 primary.

Connect a 47 pF disc ceramic from collector of Q6 to ground.

Connect a 18 pF disc ceramic from the collector of Q6 to the hot end of L3 primary.

For lowest noise figure the collector current of Q6 has been set at 2 mA as indicated by a two-volt drop across the 1 K collector resistor. The circuit stability and selectivity are enhanced by tapping the antenna feed down the primary of L2 and tapping the collector of Q6 down the primary of L3. It should be noted that the ferrite bead on the emitter of Q6 is now not needed, but if convenient, can be left in circuit.

A useful added feature is to have a switched power of 1 or 10 watts. This is achieved by adding a resistor in series with the DC feed to the driver (Q21) and PA (Q22). The place Pm referring to is called "UNSWITCHED PA + 13V8" on the circuit diagram. Cut the relevant track on the pcb, install a 10 ohm 10 W resistor onto the back panel near the PA heatsink and install a C&K style miniature toggle switch on the back panel near the incoming do wires. For 10 watts the resistor is shorted out by the switch, while for one watt output the resistor is in circuit.

Conclusions

The modifications outlined will result in a radio which has Tx and Rx audio quality, which is excellent, especially with a larger speaker.

Acknowledgment to Peter VK2MLG for preparing this document.

Reference: Electronics Australia, June and July 1984.

BY.



An Approach to Television Interference Control

Richard Cortis VK2XRC 4 Victory Street Clovelly NSW 2031

Introduction

PART FROM THE basic and obvious technical matters, there are a great number of other matters which must be addressed before you can even contemplate a solution to the technical problems that may or may not exist. Your recognition of these problems and your initial approach to them may have a profound effect on your relationship with your neighbours for a very long period. The first thing to recognise is that a potentially serious conflict is already in existence when you are first made aware that your neighbours are suffering some form of interference. As each person and family is different, your reaction will have to be carefully considered and calculated.

Initial Contact

When you are first contacted by a neighbour and advised by him that he is suffering interference to his television reception, you must first determine whether or not the interference is caused by your station. In the first place, you should ask him or her the nature of the problem and under what circumstances it has been observed.

If it was apparent when you were away on holidays, it is unlikely to be your problem. He may not see it that way and may proceed to attack you absolutely mercilessly. Ask him to show you the problem. If it is there when you are not transmitting you may wish to bring this to his attention. But beware that not all members of the public are as well educated as you are, and to them the mere presence of all that electronic gear may be frightening to them. Also be aware that, from their point of view, their TV receiving system is second to none in existence and could not under any circumstances be at fault or wanting in any way. Ignorance and supersition begin to appear as your prime enemies.

You may find that the complaint relates to a general decline in the ability to receive all channels, poor reception on one or two channels or problems with ghosting etc. Have a good look at his TV antenna and feedline etc. Corrosion in contacts at connectors, splitters, amplifiers etc will significantly reduced his received signal and make his set more susceptible to interference tenna is old or dilapidated you may consider drawing this to his attention. Bent and missing elements do little to improve reception.

On the other hand, you may find that the complaint may relate directly to interference from your station. Remember that you are already in a situation where a potentially seriously conflict exists. Remember that our society is becoming increasingly litigious and that once lawvers are involved it is most unlikely that normal relations can be restored. It would appear that some lawyers are not good at dispute resolution and may even have a vested interest in maintaining the conflict. Be ever so cautious in anything you say or do in order that you do not offend your meighbour or make any admission which could prove embarrassing to you in the future.

Initial Testing

Where it becomes necessary to caryout some tests, make sure that all your low-pass filters are installed and that your attents are perfectly tuned. You do not under any circumstances want him to see anything that is in any way a temporary aberration of your station as he will want to believe that you do that all the time. Remember that he is not technically inclined and most probably does not understand the experimental nature of the hobby.

Where you suspect a particular band (like six metres) to be at fault you may consider making some preparations to attenuate the offending signal at his TV. If you run a test and your rig wipes his TV out completely, you may be able to save the day by having a filter or trap available to demonstrate (hopefully) that the problem is at least controllable. Remember the moment you cause any deviation from normal during a test you stand accused and you are seen as the sole cause of his interference to the complete exclusion of all other services. If you can fix it for him on the spot you may stand a good chance of parting as friends as the aim of the exercise is peaceful coexistence.

Should you find or suspect that your transmitter may in some way be at fault, you must cease operation immediately and not recommence until the fault has been completely rectified.

Interference Suppression

There are quite a number of possible causes of interference to television receiving systems. Should you find yourself confronted with a problem, it is suggested you seek information and guidance from others before you proceed to physical implementation of any proposed scheme It is strongly recommended that you obtain a copy of the "Radio Frequency Interference Hand-

book" published by and available from the Department of Transport and Communications

Start by reading it from cover to cover. Then re-read the more relevant sections Your WIA Division will also attempt to help and may have a selection of designs for, and examples of, suppression devices which are both cheap and effective.

From the point of view of a first attempt solution, if the problem is suffered by a very close neighbour, the problem may be front-end overload of his receiver. The easiest solution may be the installation of an effective high pass filter. Should the problem be associated with only one hand, the solution may lie in the installation of a trap on that frequency. The trap should be manufactured for the particular band or frequency in question and should be fitted with plugs so it can simply be plugged into the back of the TV and the antenna cable plugged into the trap. Nice and easy, and the complainant can be asked to plug it in himself.

If the high pass filter or band trap approach proves ineffective, you may find that a potentially more serious problem may be emerging. Be wary, you will require the detail and willing participation of your neighbour. If you cannot get his co-operation, you have a major problem, as you will need to delve further into his system. You will need the wisdom of Solomon and the natience of Joh. Some of the possible causes and

some suggested solutions are set out below:

- 1) RF travelling down the outside of the TV antenna coaxial cable. Try winding the coaxial antenna cable around a piece of ferrite rod and taping it into position. Alternatively, the same coax may be wound onto a ferrite toroid. Both have the effect of choking out the radio frequency energy which may be travelling down the exterior of the cable. These methods do not attenuate the desired signal which is supposed to be travelling down the inside of the coax. Be careful not to kink the coax as this may change the impedance and attenuate the received signal.
- 2) RF radiated by your antenna may be collected by the street mains or by the house wiring in your neigh-

bour's house, and may be entering his TV set along the nower cord Again try winding the power cable around a ferrite rod or through a ferrite toroid. If this is not successful or produces only limited suppression of the problem, you should consider a commercial mains power filter. These are becoming readily available, and are not expensive. They are usually used in conjunction with a home computer.

3) RF picked up by the inner circuitry of the TV set. You have a problem. The chances are that your neighhour is not going to let you line the innards of his pride and joy with aluminium foil, and if he did, it may not work anyway. The real solution is to stop radiating into his TV. Try moving your antenna or redirecting the major lobe away from his TV set. The most satisfactory solution is to unorade your antenna system and stick it up on a tower well above the susceptible TV. and possibly well above his antenna, too. There is not much else vou can do.

Who is Going to Pay for all This?

The question of who is going to pay for all of this is a moot point. Theoretically, each person is responsible for the rectification or modification of his own equipment. However, you must remember that you are officially at war (either declared or undeclared) with your neighbour, and there may be some sacrifices to be made in the interests of a lasting peace. On the other hand, you must be aware that some precedents may be established that you would rather not establish. In order that you get back on air, it may be expedient to purchase the equipment and install it at your own cost. That may be okay for one house, but may become totally unacceptable for the whole street. An ontion may be to lend the gear to the neighbour pending his later upgrading of the system when next he has some work done. Then you can forget to ask for it back. If anyone else wants it done, they can look at what you have lent to the first neighbour and go and get the gear out. But then again, if they become a real pain, the cost may be

justified just to stay on the air peacefully. Again, you need the wisdom of Solomon.

Running Warfare

When early attempts to achieve a workable solution fail and you find yourself in a running battle with one or more of your neighbours, it will be necessary to enlist the assistance of a technically skilled mediator. This usually means that you somehow get the neighbour to pay the fee and lodge a complaint with the Department of Communications. This means dealing with a radio inspector. This can actua ally be quite a lot of fun if you have not played with a spectrum analyser before. If you are properly prepared, you can probably get the assistance of the RI and his spectrum analyser to trim coaxial traps and to tune some filters. You can also have a look at the characteristics of some of the interference suppression devices you intend to use. Don't be backward in asking, as the things you are asking are part of the overall solution to the problem. It also demonstrates most effectively your good intent in the solution of the problem. Get into it.

Another aspect of calling in the Radio Inspector is that it is human nature not to place a lot of value on something that is free. Your neighbour, having paid a nominal fee for the attendance of the RI, will possibly be in a better frame of mind to listen to him and to take the advice that he has paid for. Try it, but make sure your TV does not suffer interference under full power conditions and that your station is in generally top class condition.

Conclusion

The resolution of complaints about amateur radio interference with the reception of television programs is quite difficult, as it impinges upon the passive recreation of a person or family who feel they have done nothing wrong as the problem did not arise until vou came along. If the problem goes away when you go away, it MUST be your fault! The technical matters are reasonably well documented. However, you will need to call upon the pinnacle of public relations expertise in order to resolve the average problem.



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1.7dB agin on 2m and 4.7dB gain on 70cm and has a maximum power rating of 50W (conservative) Supplied complete with low loss coox cobie fifted with a moulded PL-259

Ditto Oct D 4812 ----

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Cat D-4810

c) ST-7800 DELUXE 2m/70cm ANTENNA

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the ST-7800 can also be used successfully. as a temporary base stat on antenna Requires on SO-239 antenno base (D-4035 or 0-4052 recommended)

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can be fed with any length of 50 ohm coax coble

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2m ANTENNA F-23A 2m/70cm ANTENNA GST-1

144-148MHz 144-148MHz. Frequency Frequency 7 8dB 430-440MHz Gain 6.0dB(2m), 8.0dB (70cm) Max Pa 200W Gain 4 53m 200W Length Mox Pw 3 x % A colinear Length 2 6m type Type

Connecto Ort D 4850

Cat D-4830 BR4NER

2 x % ^ colinear (2m). 4 x % ^ col·near (70am)

23cm ANTENNA F-1230A Frequency 1260-1300MHz Gain

\$0-239

13 5dB Max Power 100W 3.06m Length: 25 x ½ à colineor Connector N-type Oal D-4870

Frequency 144-148MHz, 430-440MHz Gain 7 9dB (2 1 7dB (70cm) Max Power 200W Length 4 4m 3 x % ^ colinear (2m), 7 x % ^ colinear (70cm) Connector \$0-239

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Oct D-4835

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Right to the Source!

The Ultimate Way of Ridding the Bands of Intrudors

Moran Subroadan Villand

OMETIME BACK I was on 20 metres, and to my astonishment heard music on 14.150 at 5-9 plus 20 dB over! To make matters worse (for me anyway) it was coming from Vienna, where my parents come from and where I went to school. What could I do? It had become a personal thing

After some thought, it came to me. As I speak fluent Austrian, I will phone them!

The overseas directory gave me the number very quickly. I asked to be put through to the transmitter supervisor, got him first hit. I said I was speaking from Perth, Western Australia, and that his transmitter was well within our harn band frequency. He said that could not be (but, I could hear him tuning to 14.150 on a Rx somewhere near) and lo and behold, there it was, right where I said!

After profuse apologies he promised to take the offending transmission out of our band!

Three minutes later - it was gone!

More About Norm VKSNE

Born in London in 1922 of Austrian parents: spent half his schooling in Vienna; till 1929, got out of Vienna three days before war broke out, just. But that's another story!

Joined the British Army in 1941 (a bit awkward that, as he has a typical German name!) and spent the next four years overseas, starting off in the North African desert force. Slowly wound his way up Italy and crossed the southern border of Austria the day war finished. Was given special permission to be on the first convoy into Vienna, to see if his parents were still alive!

Found them well, but starving. Out of all his relatives, of which there were many, only one uncle died on the Russian front.

After arranging some basic sustenance for his mother and father via the British Red Cross, he was given permission to fly them to London to their married daughter. He then set out on his first of four migrations. First to Canada; gave up after one year, having an assortment of jobs, such as lumberjack in the northern territories, truck-driver, gas pump attendant etc.

Second migration was to South Africa (Jo-Burg); lasted only six months there. His third migration took him to southern Rhodesia, more truck driving! This time 20-ton 32-wheel lowloaders taking Caterpillar D9s to start off the now famous KARIBA DAM.

When all the heavy plant items were delivered he was offered the job of Site Stores Controller by the contractors. where he first came face to face with two-way radio, a direct link to the-then capital, Salisbury, some 1000 miles to the south of the Zambesi River. At night, when things were quiet, he listened to hams on the two-way, which had short-wave facility built in, and caught the bug! So, on the next fourday leave (once a month) he went to the Post and Telegraph Office in Salisbury and calmly asked for one of them [sic] "ham" licences! Boy, was he in shock when it was explained, in detail, what a ham licence entailed. Undaunted, he armed himself with the appropriate books and previous test papers and took off back to the Kariba dam site. Months later, and with the help of the resident post-office engineer, he decided (with great trepidation) to take his test, which he managed to pass, and received the call ZE5JI. Date: 1959.

After the completion of the Kariba Dam he joined the staff of RTV (Rhodesia TV Service) and helped to put the station on air, being the first in southern Africa, then his former employer from the Kariba dam days sent him to Nigeria to install two-way radios in their building projects north of Lagos (another good story). First stop to the DoC! You guessed it - pick up that rare callsign - 5N2NFS! So he got his full initials. Norman Francis Schroeder! Not difficult, as at that time



Norm VK6NS himself, now 70 years old.



An interesting corner in Norm's shack. Note Pakratt, Computer, and five little TV monitors!

there were only six amateurs there! Date: 1961. By this time he had married Helene (now VK6HI) a year previously, and they had a son whilst there, Mark (now VK6NFS). Now we come to the fourth migration — Australia! But before we tell this incredible life

But before we tell this incredible in



(centre) is actually a home made flulight.

and jobs here (AND the fear of boring you good people to death), we will terminate this saga and ask you to look at the accompanying photos of his present-day shack.

VHF — UHF Field Day 1993 — Rules

The Field Day will again be run over the last weekend of the Ross Hull Contest — January 16/17, 1993. The locator based scotting has been retained in the hope of fincreasing interest in "grid collecting" for the WIA Grid Square Award. Times in the eastern states will be the same as last year, but for VK6 stations the Field Day will be-

gin and end three hours later.

I hope this new timing will encourage more VK6 stations to participate, as the

times will now correspond more closely to local time.

This time change will mean that for the first three hours of the Field Day it will be possible for a station in the east to score from a VK6 contact, but the VK6 station could not. However the same will occur in reverse at the end of the Field Day, so the effects should even out.

Field Day contacts can be counted for the Ross Hull Contest, and vice versa. Serial numbers do not have to be consecutive so there is no need to exchange two sets of numbers. The only points to remember are:

 You may score repeat contacts for the Field Day, but each station may only appear in your Ross Hull log once per band per day.

Field Day exchanges must include Maidenhead locators.

The other main change is the introduction of a six-hour period as well as the normal 24-hour section. This will make it easier for those who can only go out for one day.

Duration

VK6 only: 0500 UTC Saturday 16 January to 0500 UTC Sunday 17 January.
All other call areas: 0200 UTC Saturday to 0200 UTC Sunday.

Sections

- A: Portable station, single operator, 24 hours.
- B: Portable station, single operator, 6
- C: Portable station, multiple operator, 24 hours.D: Home station.
- Single operator stations may enter for both Section A and Section B.

General Rules

All modes and bands above 30 MHz may be used. Contest exchanges should not be made on recognised DX calling frequencies. Repeater and crossband contacts are not allowed. Entrans may not operate from more than one locator square. You may work stations within your own locator square.

Contest Exchange

RS or RST reports, a three-digit serial number (serial numbers need not be consecutive), and your Maidenhead locator.

Repeat Contacts

Stations may be worked again on each band after four hours.

Scoring

1 point per contact, 2 points if both stations are portable. Band multipliers: 6 m 2 m 70 cm 23 cm 2.3 GHz Higher

x 1 x 4 x 7 x 10 x 13 x 16 For each band, multiply the points score

(either 1 or 2 points per contact) by the number of locator squares worked on that band, then by the appropriate band multiplier. For example, on 2 metres, 20 points x 4 squares x 4 = 320 points

See the same scoring table below.

Logs For a

For each contact: UTC time, band, statson worked, serial numbers and locator numbers exchanged, points claimed. The front sheet should contain the name, address and callsign of the operator, section entered, and a scoring table as follows: Band Peiner, Sourse Multiblier Total

6 m	XXXX	Х	XXXX	X	1=	XXXX
2 m	XXXX	х	XXXX	X	4=	XXXX
70 cm	XXXX	х	XXXX	K	?=	XXXX
etc.						

Overall Total XXXX

Entries

Post logs to the Manager, VHF-UHF Field Day, PO Box 300, Caulfield South, Vic 3162. Logs must be received by Monday, February 1, 1992. Early logs would be appreciated.

Awards

The overall winner will be the highest allband scorer in Section A. Awards will also be made to the highest scorer on each band in Section A, and the highest scorers in Sections B, C and D.

Help stamp out stolen equipment — keep a record of all your equipment

all your equipment serial numbers in a safe place.

AsiaNet IBM Library

Las Kinch VK2580

NOTED IN THE March issue you gave publicity to the very worthwhile Commodore library that operates from Fremantle WA. I am in fairly frequent contact with John VK6YBP as we exchange notes on the most efficient way of running these disk-based libraries.

In 1988 I established an IBM library - usually called the AsiaNet IBM Library, and have concentrated on issuing packet bulletins from time to time to let those interested know just what new stuff I have received. The response has always been very good.

These lists are usually retained on many of the Packet BBSs for access by local users - all over the world. I have yet to hear of a similar library anywhere - so I guess I must be "IT"!. Customers have been from as far away as Norway, Sweden, Germany, England, Cyprus, Greece, Hongkong, Taiwan, Ascension Island, Philippines, Hawaiian islands, NZ and all Australian states.

However, am I getting to the majority of Amateurs with these really super programs? - I think not. Not every amateur is a Packet radio buff, however I carry a heap of programs not necessarily involved with packet.

Editor's Note:

The programs are classified into a number of "libraries" entitled Comms. Ham, Utill and 2, Games. Regretfully, space pressures do not permit publication of a full listing in AR, but as a sample of what is available, the "Ham" library is reproduced here together with ordering information ... VK3UV (Production Editor).

Library Ordering information:

Disk size catered for: 3.5 inch 720/1.44 -- cost \$5.00 each disk. 5.25 inch 360k/1.2MB - cost \$3.50 each disk.

Disk prices INCLUDE disks, packaging, postage and DOC(if needed) ALL docs are on disk for local printout....

Overseas Orders: Prices are in US\$. except for NZ customers who may forward Australian Dollars.

ALL programs are COMPRESSED to save space. Most are compressed using PKZIP or LHARC. Some are selfextracting files as used by the originator. In any case the sizes you see on the various lists are those you should consider when you make up your program order.

When making up your order for the Library, consider these points: 1. Disks can contain 360K, 720K,

1.4MB or 1.2Mb - depending on your preference.

2. If you have programs totalling 375K for sending on a 360K disk that will use TWO disks - whichever way

you juggle it. Better to find some more programs to fill the disks usefully - I don't mind. The same rules apply to ALL sizes of disks. 3. Having seen the Library lists, If you

have FREEWARE/SHAREWARE programs which you think would be useful additions to this library. please feel free to send them on to me. I will offer you free choice of the library for such donations this is the way the system improves. 4. Any suggestions for improving this

Library format would be welcomed. It has been going since 1988 with little feedback but a lot of orders, so I am hoping it is OK as it is - still I am open to change, 5. If you don't have the "Un-Packing" programs --- please say so on your

order - you might order the latest version of "LHA" anyway as I shall be using that one more and more from now on. 6. New File-name Convention: A file

name such as LHA212@.EXE or similar will always mean that it is self-extracting file and may well use a complete disk to extract the contained programs. 7. Interesting note; my disks contain a

large amount of compressed programs. Shareware/Freeware disks usually contain just the ONE subject program.

8. If you leave enough room on the disk(s) you order I will always attempt to fill the disks up completely with the latest programs you may not have heard about. Now, that's value!

Order Address: Les Kinch VK2BBD, Longford, Bendemeer, NSW 2355.

HAM PROGRAMS:

CWTUTOR

CONLOG

July 92 PROGRAM SIZE(K) BRIEF DESCRIPTION OF PROGRAM: ALINCOMOD 53 COLLECTION OF "ALINCO'MODS ARLOGD1 267 A COMPREHENSIVE LOG-BOOK PROGRAM ARLOGD2 300 PART TWO OF ABOVE ARLOGBK 286 LOG BOOK PROGRAM AZDENMOD 4 SOME MODS FOR "AZDEN" RIGS ANTPLOT 74 PRETTY COMPREHENSIVE ANTENNA-PLOTTING ROUTINE BANDAID A HAM "COMPANION WORLD MAP FOR XT ONLY IT SEEMS BAY-NEW 70 SOME LATER NOTES ON BAYCOM C64MODS 5 SOME C64 COMPUTER MODS

CW TUTOR PROGRAM

CONTEST LOG PROGRAM

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EA-FROJ	10	LISTING OF EA MAGAZINE PROJECTS	11
ELECTRON	86	MANY FORMULAE FOR ELECTRONICS	
ETI-PROJ	15	LISTING OF "ETI" PROJECTS	⊢
FILTER	34	SOME FILTER IDEAS FOR YOU	1
FL2100MD	3	SOME MODS FOR FL2100 LINEAR	l tì
FTMODS	27	SOME MODS FOR YAESU "FT" SERIES	I to
GREYLINE	78	DISPLAY WORLD-GLOBE/TIME ZONES	l k
OKETLINE	10	FOR "DX" PATH	l n
HAMCALCI	195	GETTING INTO THE "HEAVY FORMULA"	٥
		STUFF 1	a
HAMCALC2	189	PART TWO OF THIS	١.
HAMRTTY	142	A WORKING GUIDE TO RTTY — SOME	0
		SOFTWARE PROGRAMS	d
HAMSSTV	38	SOFTWARE APPROACH TO SSTV - WITH	
111111001	50	DIGITIZED PICS	y
HYPERLOG	220	COMPREHENSIVE HAM LOG-BOOK FROM	J
HIFEKLOG	220	USA	
			V
ICOMQSY	132	QSY PROGRAM FOR "ICOM" GEAR WITH	R
		APROPRIATE PCB'S	n
ICOMODS	190	SOME ICOM RADIO MODS	ri
KDK2016	3	SOME MODS FOR THE KDK2016	30
KENWMODS	62	SOME MODS FOR KENWOOD "HF" GEAR	b
MORSE201	91	'SUPERMORSE" - THE BEST MORSE PRO-	P
		GRAM TO DATE.	þ
MORSEDOS	17	HOW ABOUT MORSE RESPONSE FROM	3:
MOKSEDOS	17	YOUR DOS ???	H
			w
MOTROLA	306	MOTOROLA DATABASE OF IC'S (1 DISK,	tc
		REALLY)	
MOTROLA2	389	MOTROLA D/B LATER VERSION (NEEDS	h
		720K DISK)	F
NACONLOG	180	NORTH-AMERICAN CONTEST LOG	
OZSPLIT	24	SPLITS LONG FILES INTO APPROX 3K	a
		PACKETS FOR TX.	P
PCHAM	140	A CONTEST STYLE DATA-BASE NEEDS	a
1 CHILLIA	140	BASIC.	0
DDOGG AND A	15	SOME MODS FOR THE "PRO" SCANNERS	0
PROSCANM			B
SATFIND	49	A REAL-TIME DISPLAY OF SATELLITES —	n:
		GREAT PROGRAM.	ty
SCANBATM	7	MODS FOR SCANNER BATTERY PACKS	tì
TNCMODS	74	SOME MODS FOR TNCS	n
TOPLOG	1,2MB	MASSIVE LOG-BOOK PROGRAM FROM	C
		ITALY-VERY COMPREHENSIVE	b
VHF-UHF	50	UHF/VHF ANTENNA DESIGN	bi
YAGIMAX	342	MAXIMIZE YOUR YAGI ARRAYS	te
YAGINEC	186	SMITH CHARTS/POLAR DIAGS AND	
IAGINEC	100	THINGS	V2
MACIONE	100		ti
YAGIOPT	173	GOOD YAGI DESIGN PROGRAM	tr
YASUMODS	32	YAESU MOD COLLECTION	0
WA9GFR	130	SMITH CHARTS-HF/VHF PROPAGATION	l _
			1 2

CALCS.

GOOD ONE!

NEED THIS ONE

HONE-UP YOUR SPEED

CONTEST-LOG V20 FROM USA

CW W/W LOG KEEPING FROM USA

A TERMINAL PROGRAM BY VK2DAZ.

LISTING OF "EA MAGAZINE" PROJECTS

A LIST OF USA COUNTIES

SAYS IT ALL

CONLOG20

COUNTIES

CWTUTOR

DAZCOM

EA-PROJ

WTIME

YAGIOPT

CWTUTOR

95

CWWWLOG

134

177

98

150

70

18

ALARA

Robyn Gladwin VK3ENX

PO Box 438 Chelsea Vic 3196

I would like to extend my best wishes for the New Year to all As communication technology truly makes the world a "global village", it is to be hoped that the radio friendships made by amateur operators can continue to foster understanding and tolerance between nations.

An interesting example of international cooperation through amateur radio is the experience of Joan Beevers, VK3BJB, who decided to learn some "Basic Japanese" six years ago. Joan was the VK contact and support person for YL Kyoko Imakire. JJ6PPJ/MM, during her 187 day solo voyage around the world in the vacht, "Kairen". Kyoko left her home port of Kagoshima, Japan, on 12th October, 1991, and arrived back there safely on 15th July, 1992. oan was also very busy supporting Kyoko's back-up crew via radio, phone, fax and phone patch. Joan was asked if she could be on standby to support the famous apanese vachtsman/adventurer, Kennichi Horie, from 31st October, 1992, when he will attempt a Pacific crossing from Hawaii to Okinawa by foot-pedalling his new boat. "Mermaid". She was support station for him once before when he sailed from San rancisco to Japan.

The ALARA luncheons in VK5, VK3 and VK6, and the VK4 Net are proving popular as a means of both supporting YL maneuers and of encouraging others to Join our hobby. VK2 has members spread all ower the State but individuals like Dorothy Bishop, VK2DDB, are helping to attract mer recruits by using the ALARA publicity kit now held by each State Representative Dorothy set up atable at the recent annual from by and Draitrick Amateur Radio with the properties of th

As 1993 begins, here is a reminder of the various YL Nets. This is an enjoyable activity for members and an excellent in troduction to on air contacts for new operators.

Official ALARA Net Mondays 3.580+ 1030 UTC (or 1000UTC during daylight saving) VK6 ALARA/YL Net: Conducted by Poppy, VK6YF, following the national net on Mondays 3.585+ 1200

UTC. YL "222" DX Net: Mondays 14.222 066 UTC. Call in from 0545 UTC Net control Dave, ZLIAMN.

'WORLD:TIME" DISPLAY — ALL ZONES ---

MACHINE LANGUAGE MORSE PROGRAM

IF YOUR ARE "INTO" DESIGN — YOU

European YL DX Net: Thursdays 14.243+- 1700 UTC. Net control: Christine, GM4YMM.

VE/VK/ZL Net: Fridays 14.148 0500 UTC

UTC VK4 CQYL Net. Fridays 3.580 + 89. UTC

YL Activity Day: 6th of each month. Listen on the hour and/or call "CQ YL". Frequencies — 14.288 21.188 28.588. YL Chat: Bev. VK6DE, has a YL chat on Fridays 21.188 0400 UTC. will be devoted to a un down on the status of the currently operational amateur radio satellites. Last month 1 mentioned ZRO tests and their importance in an educational sense to help discourage thoughtless behaviour and emphasise the benefits of improving your station's listening performance. I will hold further discussion of this over until next month.

AO-10 (AMSAT Osser-10). The first of the highly ellipsical orbit anateur radio satellites. Oscar-10 is out of control due to radiation damage to the on board computer memory. It is permanently switched into and on randomly depending to some extent on sun angle and state of battery charge. Oscar-10 is producing some excellent opportunities for long distance contacts but at times it requires a fair amount of power to tunknown at present since not referred to the observation of the control of the contro

further extrapolation is impossible. UO-11 (UoSAT Oscar-1). The second in the University of Surrey (England) series. There are no insupponders on this statellite. Its prime purpose is educational. It carries because and elementry transmitters, and its universities around the world. Full odocumentation is available to educate and amateur users from UoS. It continues to be fully operational and the nontrollers are always actions to bear from new users. FO-12 (Fuji Docar-12). This satellite was

fully operational when turned off some time ago. It always suffered from power budget problems and was subject to unscheduled mode changes.

AO-13 (AMSAT Oscar-13). Second and latest high altitude elliptical orbit amateur radio satellite. Fully operational and under complete control. AO-13 has spent much of its life with its apoges over the northern bemisphere but is moving slowly south and should provide some excellent operating this and next year. Projected demise is 1996, so get in there and use it while you can, and while conditions are good and improving.

UO-14 (UoSAT Oscar-14) Third in the UOS series. This satellite was switched from amateur radio use to commercial use some time after commissioning, and is currently in operational use by humanitarian relief organisations in Africa. All amateur radio operations formerly carried on via UO 14 are now carried via UO-22. Its future in amateur radio is unknown.

UO-15 (UoSAT Oscar-15). Contact was lost with this bird shortly after launch, efforts so far to recover control have been unsuccessful

AO-16 (AMSAT Oscar-16) (Pacsat).
Operating normally with BBS using raised cosine transponder. All functions operational.

DO-17 (AMSAT Oscar-17) (Dove) This satellite is rarely heard and is still causing problems for the control station. Efforts to upload new software are continuing. Maybe some good news in 1993?

WO-18 (Weberset Oscar-18) An educa-

WO-18 (Webersat Oscar-18). An educational satellite from Weber State College. Producing telemetry and pictures from an earth pointing CCD camera. Pictures so far have been of only fair quality compared to the UoSAT.

LO-19 (LUsat Oscar-19). Fully operational 9600 bps BBS taking quite a bit of load off UO-22.

FO-20 (Fuji Oscar-20). Full operational with A and D transponders alternating reliably. Good QSOs and an excellent 9600 bps BBS.

AO-21 (AMSAT-UA Osear-21). Fully operational at present running 9 minutes of FM repeater and 1 minute of telemetry in each 10 minute of telemetry in each 10 minute time frame. Downlink signal as very strong but uplink appears to be difficult to access. Use 90 wats into an auto track circular polarised antenna for best results. This bird carries a lot of experimental gear so it could change operating modes at any time.

UO-22 (Uo-SAT Oscar-22). Best Uo-SAT oscar-22). Best Uo-SAT os far. Pully operational 9600 bps BBS. Very busy, carrying loads of traffic. Heaps of telemetry etc. Probably represents the "cutting edge" of amateur radio satellite technology. This one will be a hard act to follow and no doubt future manteur radio satellites will carry clones of its hardware systems.

KO-23 (Kitsat Oscar-23). Korean copy of a UoSAT. Still under commissioning, working well with software uploads continuing. Hopefully its BBS will take some load from UO-22 when fully operational.

RS-10/11 and RS-12/13. Both going well but rather under used in this part of the world. Modes vary but mostly A and K. Long hau! "over-the-horizon" contacts are possible with these birds. I will devote a column to them shortly to see if we can stir up some activity. They are popular in Europe where regular long haul contacts are made.

MIR (The Russian Space Staton), Hardly an anateur radio satellite but regular amateur radio activity by each crew has amde us come to regard it as one. The activity continues both on packet and voice. MIR is probably the easiest satellite to work, Just last might I had a QSO from my backyard using a handhed I transceiver whilst watching them travel overhead in the dusk sky.

Welcome to 1993. It looks like being an exciting year for amateur radio satellites. Next month I will touch on ZRO tests and look at the amateur radio satellites currently under construction or planned for launch over the next year or two.

AMSAT Australia

National co-ordinator

Bill Magnusson VK3JT 359 Williamstown Rd Yarraville VIC 3103 Packet: VK3JT@VK3BBS

Graham Ratcliff VK5AGR
Packet: VK5AGR@VK5WI
Please take note of the AMSAT information nets.

AMSAT Australia net: Control station VK5AGR Bulletin normally commences at 1000z, or 0900z depending on daylight saving and propagation . Check-ins commence 15

minutes prior to the bulletin.

Frequencies: (again depending on propagation conditions)

Primary 7.064 MHz. (Usually during summer). Secondary 3.685 MHz. (Usually during

winter).
Frequencies +/- 5 kHz for QRM.
AMSAT South West Pacific net:
2200z Saturday on 14,282 MHz.

Experienced satellite users and newcomers alike are welcome on the nets. A large body of experience is on hand to answer queries. Listen to the WIA divisional broadcasts for regular up to date AMSAT information.

ware service:
Satellite users whether experienced or newcomers will benefit by subscribing to the AMSAT Australia newletter and soft-ware service. The neweletter is published monthly by Graham VKAGK, Subscription is \$23 for Australia, \$30 for New Zealand and to no other countries by AIR MAIL. It is psyform to the countries by AIR MAIL. It is psyfollows.

AMSAT Australia addressed as follows.

PO Box 2141 Adelaide SA 5001

The newsletter provides up to date information on all current and planned amateur radio satellite activities. Graham also provides a first class soft-ware service for satellite users. New software is reviewed regularly in the newsletter. Here we are at the start of 1993. What

happened to 1992? This month's column

HF PREDICTIONS

Evan Jarman VK3ANI

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for the five bands from 14 to 28 MHz. The LITC hour is the first column: the second column lists the predicted MUF (maximum useable frequency): the third column the signal strength in dB relative to 1 aV (dBU) at the MUF: the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 aV in 50 Ohms at the receiver antenna input. The table below relates these figures to the amateur Spoint "standard" where S9 is 50 µV at the

receiver's input and the S-mater coals is 6

dB per S-point.		
μV in 50 Ohms	S-points	dB(uV)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4
0.78	S3	2
0.39	S2	- 8
0.20	S1	- 14

The tables are generated by the GRAPH DX program from FT Promotions, assuming 100 W transmitter power output modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers

most of Western Europe and the UK). The sunspot number used to generate this

month's predictions is 62. The predicted value for next month is 61.

Please note the return of the ten metre band and the slight change in format.

The change in format is part of an ongoing process of which more will be said

next month

SHORT PATH EASTERN AUSTRALIA

Mediterranean TC MUF dBU POT 14.2 18.1 21.2 24.9 -16

4	19.0	- 3	14.6	-7	2	2	-1	-9
5	25 2	6	19.4	-12	2	6	6	3
6	26.9	8	20.5	-15	2	- 7	- 8	- 6
7	263	8	20.9	-14	2	7	9	7
8	25.6	9	20.8	+10	4	9	9	6
9	24.7	10	20.5	-4	8	11	10	6
10	23.7	13	19.1	6	14	14	11	6
11	22.6	16	18.1	17	20	31	13	6
12	21.6	20	17.3	26	25	20	13	- 5
13	211	23	16.8	33	28	22	14	4
14	20.5	24	16.2	36	30	23	13	2
15	19.8	25	16.0	37	29	22	11	0
16	18.7	26	14.6	37	28	19	8	-5
17	17.6	27	13.6	36	26	16	4	-10
18	16.4	28	12.6	34	23	13	-1	-17
5 6 7 8 9 10 112 13 14 15 16 17 18 19 20	19.0 25 2 26 9 26 3 25 6 24.7 23.7 21.6 21.1 20.5 19.8 18 7 17.6 15.5	3 6 8 8 9 10 13 16 20 23 24 25 26 27 28 29 28	14.6 19.4 20.5 20.9 20.8 20.5 19.1 18.1 17.3 16.8 16.2 16.0 14.6 12.6 12.6 12.0	-12 -15 -14 +10 -4 6 17 26 33 36 37 37 36 34 32	2 2 2 2 4 8 14 20 25 28 30 29 28 26 23 20 20 20 20 20 20 20 20 20 20 20 20 20	9	-17 -16 8 9 9 10 11 13 13 14 13 11 8 4 -16 -6	-23
20	15.8	28	12.0	32	20	2 6 7 7 9 11 14 18 20 22 23 21 9 16 13 9 9	-6	39367666654205107233

-15 -13 -10 -3 -17 27 31 32 33 32 29 29 29 18.2 17.6 16.7 15.8 10 11 12 13 14 15 16 17 18 19 20 21 22 23 11 16 21 25 27 28 29 29 29 27 22 17 10.7 18.6 17.8

16.5 15.8 15.0 11.4 14.4 14.2

10.0

SOUTHERN AUSTRALIA

15.4 19.2

-33 -24 -10 -14 -18 -24 -29 -35 -37 -13 -13 -13 -13 -12 -12 -13

24.9 28.5

14 17

WESTERN AUSTRALIA 21,2 24,9

3	11.8 17.9 23.1 23.4 23.2 22.8 22.3 21.6 20.7 19.7 18.8 18.3 17.7 17.1 16.2 15.3 14.4	-1 5 7 7 7 7 7 8 10 14 19 23 24 25	8.8 13.8 17.4 18.0	1136875155	-5 5 7 5 4 5 6 8 11 17 22 24 24 24	-16	-33	
4	179	- 5	13.B	L	5	2	-6	-16
5	23.1	7	17.4	-3	7	8	5	0
6	23.4	7	18.0	-6	5	8	- 6	2
7	23,4	7	18.8	-8	- 4	7	6	2
- 8	23.2	7	18.6	-7	5	7	6	2
9	22.8	7	18.6	-5	6	8	6	- 1
10	22.3	8	IAI	-1	8	9	6	i
ti	21.6	10	18.8 18.6 18.1 17.9 16.7 15.8 15.0 14.5 14.0	5	11	2 8 7 7 8 9 11 14 16	6	022220-4-7-103-17-23-30
12	20.7	14	16.7	LS	17	14	7	-1
13	19.7	19	15.8		22	16	7	-4
14	18.8	23	15.0	32 33 34	24	16	5	-7
15	18.3	24	14.5	33	24	16	3	-10
16	17.7	25	14.0	34	24	14	i	-13
17	17.1		13.9 12.7 11.9 11.1	34	23	12	-1	-17
18	16.2	27	12.7	33	20	9	-6	-23
19	15.3	27	11.9	31	18	5	эÜ	-30
20	14.4	26 27 27 28	11.1	29	20 18 14	Ď	-18	-39
21	13.8	28	10.6	27	11	-3	-21	
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 12 22 23	13.9	26	10.4	33 31 29 27 25	8 3	12 9 5 0 -3 -8 -13	6566666775311-6118 -1839	444
23	13.0	24	9.8	20	- 3	-13	-36	-
24	11.4	17	8.6	10	-7	-25		
	11.74	**	0.0					

Afric	18							
	MLF		FOT	14.2	18.1	21.2	24.9	28.5
- 1	.4.8	7	10.4	6	- 5	0	-11	-24
2	14.8	4	11.3	3	4	0	-9	-21
3	14.8	0	11 2	-1	2	1	-9	-20 -II
4	17.0	1	.2.8	5	2		3	-11
5	201	- 1	14.1	-8	2	3	0	-5
6	20.3	3	14.2	-10	1	3	i i	
7 8	20.3	3	14.2	-10	1	3	- 1	5
8	20.2	4	14.2	-8	2	4	- 1	5 5 5 7
9	20.0	- 5	14.1	-5	- 4	5	- 1	. 5
10	191	6	14.0	-1	6	- 5	0	
11	181	8	139	4	8	6	0	-10
12	17.1	19	13.7	8	9	5	-3	-13
13	16.4	13	13.0	13	LE	5	-5	
14	157	17	12.4	18	13	5	-7	-21
15	15.1	22	11.9	24	15	4	-10	
16	14.4	26	11.2	26	14	2	-14	-32
17	13 7	28	10.6	26	[3	0	-18	-39
18	13.2	29	10.1	26	11	3	-23	-
19	13.0	30	97	26	10	4	24	-

10.5

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Africa
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EASTERN AUSTRALIA	SOUTHERN AUSTRALIA	WESTERN AUSTRALIA
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LONG PATH

EASTERN AUSTRALIA Europe

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WESTERN AUSTRALIA Europe

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4	9.1 8.2	14	71	-3	-10	22		
5	8.2	14	6.4	-3	-15	-30		
6	8.0	-10	6.3	-4	-19	-36		
23456789	9.2	- 1	7.3	-1	-15	-32		
8	11.6	10	9.2	7	-5	-18	-37	
9	14.8	14	119	15	6	-3	-18	-34
10	14.8	17	11.5	18	9 1 4	0	-13	-29
И	12.3	15	9.5	12	- 1	-11	-29	
12	12.0	7	9.2	7 3 -4	- 4	11	27	
13	15.8	4	10.9	3	4	0	8	19
14	15.3	-2	10.4	-4	0	2	-8	17
15	14.6	-9	10.1	-10	-3	- 4	9	-18
16	14.0	- 13	9.5	12	-5	5	10	-19
17	13.3	-17	9.1	-13	-5	-6	-11	-19
18	12.9	-19	8.9	-13	-5	-6	-ii	-20
19	12.9	20	8.9	-14	-5	-6	-11	-20
20	12.7	-19	94	-12	-5	-7	-13	-23
21	10.9		8.6	-22	-16	-20	-30	
22	9.8	-63	7.7	-27	-25	-31		-
23	9.3		7.2	-26	-26	-34		
24	9.0		7.0	-21	-23	-33	40.00	

IARUMS — Intruder Watch

Gordon Loveday VK4KAL Federal Intruder Watch Co-ordinator Freepost No 4 Rubyvale Qid 4702 or VK4KAL@VK4UN-1

Review time has caught up again. The most blatant infringement still comes from USSR (now CIS). A letter from DoTC to VAZOOP in Feb 1985 stated, quote "the USSR has agreed to remove intruder UMS (Mosscow Nawal Radio) from 21.032 and 14.144 Mrkz". We are still reporting this intruder, but how the can we take of their word? UMS still rates the most intrusions per year.

It also appears that I have upset some amateurs by stating "I welcome observations from all amateurs whether they are members of the WiA or not". I make no apologies for that, I would like to direct those persons to the article a foctober issue of "AR", page 5, ist column, And last a broader outlook on its activities. I welcome observations without exception.

Section 5 of the Monitoring System Manual covers many subjects, including Personnel, Equipment, Hours of Work, Types of Monitoring, Bands etc, 10 sections.

Let me comment on "hours of work". Monitors must be able to put aside two or three hours minimum per week. Less than this results in loss of familiarity with the patterns of activity on the bands being monitored.

Types of monitoring, general coverage and specific. Some monitors are experts in a particular mode viz, AIA (CW) or FIB (RTTY). These persons should be encouraged as the "obs" ends up with an intimate knowledge of that band. It is a pity that the manual is 25mm thick. It offers help in decoding AIA text in Arabic, Turkish, Hebrew and Cyrillic Russian.

My thanks to those who participated in the IBF Survey, the outcome will be published in due course.

I hope Christmas 1992 was happy at your QTH.

73 VK4KAL

Stolen Equipment

Stolen during the 1st week of December 1992, from the radio shack of VK3MT/VK3COT, at the Royal Melbourne Institute of Technology (RMIT), City Campus, 124 Latrobe Street, Melbourne, ICOM IC734 HF Transceiver, with Power Supply and handset. IC734 Serial No 6196, Power Supply Serial No 0180.

The transceiver is engraved on the heatsink inside the set, and on the bottom of the top cover. Please contact John Tobin at RMIT Security (03) 660 2490. Information from Craig Cook VK3CMC (03) 660 4345 (B.Hrs), Fax (03) 662 2525.

Stolen on 27th November 1992 from Signal Hill at Goulburn, NSW, Goulburn Amateur Radio Society Inc:—

Pac-Comm Tiny 2 Terminal Node Controller, S/N T5782.

Pac-Comm Tiny 2 Terminal Node Controller, S/N T6784.

YAESU UHF Transceiver model FT712, S/N 81120576.

/N 81120576.

Phillins FM828 transceiver, S/N 42459.

Power Supply, unidentified, known as FRY1501.

Please contact Goulburn Police (048) 21 2344, or (048) 21 2534.

Purchasers of used amateur radio equipment are requested to be alert for signs of removal of Serial or ID numbering.

ICOM IC730 HF Transceiver S/N 13814689, from the radio shack of Royal Melbourne Institute of Bechnology (RMIT) approx 5th Nov 1992. May have RMIT ident engraved thereon, or a small alumnition of the respective of the physician of the unitable port-rived with appropriate unitable port-rived with appropriate phone, but DC power cord left behind. Contact John Bohin at RMIT Security (03) 660 2490, or Craig Cook VK3CMC (03) 660 2434 (B Hrs.)

Awards

John Kelleher VK3DP Federal Awards Manager

DXCC Profile Stuart Millawick VK&MI



Stuart became interested in amateur radio in 1934 as a schoolboy.

He assisted George Chandler VK3AC with his Sunday broadcasts on the 200 metre band. He also constructed several short-wave receivers, listening to overseas broadcasts. That is when the DX bug bit

him. In 1940 he completed his electrical apprenticeship, moving to Mount Gambier via Penola. He obtained his AOCP in June 1947 and came on air in September that year. Stuart conducted experiments with John Sheard VK5JA on two metres. Prior to 1950 when 240v was installed, he utilised a 12 volt generator and petrol engine for power. He built a new rig using an 815 na. plate modulated with 807's for around 50 watts input. His receiver was an Eddystone 640. This gear was updated around 1953 and a brand new home brew 3 element beam for 20 metres DX was really boom-



rt in the early days of his Amateu dio activities, with his mainly home

ing around 1963 and Stuart became the first VK station to confirm 300 countries on AM. In the 1960's he acquired a new FT-100 and retired the old gear. On the 14th November 1966, he was made a member of the ARRL DXCC honour roll. On a visit to the USA in 1968 he nurchased a Drake Line TR3-R4A, T4XB/R4B. This equipment is still in use.

His advice to those aspiring to higher levels of DXCC is...

(1) Set yourself a reasonable progressive fatos

(2) Don't be in too much of a hurry. (3) Spend a lot of time listening.

(4) Try working often in contests to hone your operating skills. (5) Make sure that your equipment is relia-

ble and accurate. (6) Always abide by good operating skills

and etiquette.

(7) Remember your family responsibilities. and keep within your working finances.

The 1992 VK5MS Antenna Ferm



But the chap said — just tune it up for maximum spark and it would go like a rocket on all bands. It's good for the azone lever too."

ELECTRONIC DISPOSALS

27 THE MALL SOUTH CROYDON

Specials

3 watt ceramic resistors 10c each 40 amp 12 V relays single throw \$4 5A Bi Metal cut outs 35c each CB/10m end fed mobile ant comes complete with coax and mount

\$12.00 Mains cans 240 v \$100 each ECL - ICs 10 000 series \$3 50 per tube

2716 70c each or \$10 per tube 9016 16k ×\$12 per tube TL082 Low noise op amp \$1 each

10 µF 40 v low leakage Flectrolytics \$6 per 100 2200 µF 50 V axial 90c each plus

lots components at reduced rates. KITS (OR PARTS, BOARD, ETC.) AVAILABLE FOR DREW DIAMOND S PROJECTS



CONTESTS

Peter Nesbit VK3APN — Federal Contest Coordinator 24 Sovereign Way, Avondale Heights, 3034.

Contest Calendar Jan-Mar 93

Rules,	where already published, are in the indicated issue.	
Ton 1	Straight Ver Might (Dec 02)	

Jan I	Straight Key Night (Dec 92)
Jan 2/3	ARRL RTTY Roundup (Dec 92)
Jan 16/17	WIA VHF/UHF Field Day Contest
Jan 16/17	HA CW DX Contest
Jan 29/31	CQ Worldwide 160 Metre CW Contes
Jan 30/31	UBA SSB DX Contest
Jan 30 - Feb 7	ARRL Novice Roundup
Feb 13/14	PACC CW/SSB DX Contest
Feb 13/14	RSGB 160 Metre CW Contest
Feb 13/14	Spanish RTTY Contest
Feb 20/21	ARRL DX CW Contest
Feb 26/28	CO Worldwide 160 Metre SSB Contes
Feb 27/28	RSGB 7MHz CW Contest
Feb 27/28	UBA CW DX Contest
Mar 6/7	ARRL DX SSB Contest
Mar 13/14	BERU CW Contest
Mar 20/21	WIA John Moyle Field Day
Mar 20/21	Bermuda Contest
Mar 20/21	BARTG RTTY Contest
Mar 27/28	CO WPX SSB Contest

RSGR 160m SSR Contest

Once again some interesting contests coming up, including three popular European DX contests (HA, UBA and PACC). a couple of 160m contests, and the Spanish RTTY contest. If you submit a log, don't forget to include your call sign, name and address (it's amazing how many people do

Mar 27/28

forget)! If you don't want to go through the rigmarole of producing and submitting full logs, check logs are always welcomed.

Please forward material, suggestions etc. to me at the above address at least five weeks before the month of issue. Until next month, good contesting!

73s. Peter VK3APN

HA CW DX Contest

This popular European HF contest is CW only, and is scheduled for 2200z Saturday to 2200z Sunday, 16/17 Jan.

Exchange RST plus serial number starting at 001. Hungarian stations will also send a 2 letter code indicating their county. Possible codes are. BA BE BP BN BO CS FE GY HA HE KO NO PE SA SO SZ TO VA VE ZA.

Score 6 points per Hungarian QSO, and 3 points per non-Hungarian OSO is other WAC continents. Final score is total OSO points times total Hungarian counties worked per band.

Send log, summary sheet, declaration etc. to arrive by 26 Feb at: Hungarian Radioamateur Society, Box 86, Budapest H-1581, Hungary.

UBA 55B/CW MF Contest

This is sponsored by the Belgium Amateur Radio Union (UBA), and runs from 1300z Saturday to 1300z Sunday, SSB on 30/31 Jan and CW on 27/28 Feb. Any station may work any other worldwide. Categories include single operator single

band, single operator all band, multioperator single transmitter, and ORP 10W max. Frequencies: CW 3500-3560, 7000-7035, 14000-14060, 21000-21060, 28000-28060;

SSB 3600-3650, 3700-3800, 7040-7100, 14125-14300, 21200-21400, 28500-28800. Exchange RS(T) plus serial number. Belgian stations will add their province abbreviation

Score 10 points for contacts with Belgian stations, 3 points with other European stations, and I point with others. The multiplier is the total of Belgian provinces, Belgian prefixes, and European countries. Total score is QSO points times multiplier.

Send log, summary sheet, declaration etc. within 30 days to: UBA HF Contest, Oude Gendarmeriestraat 62. B-3100 Heist On Den Berg, Belgium.

CQ Worldwide 160 Metre Contest This contest runs from 2200z Friday to 1600z Sunday, CW on Jan. 29-31, and

phone on Feb. 26-28 (note different date to that shown in last month's Calendar). The object is to contact as many stations worldwide on 160m as possible VK to VK contacts are permitted for contest credit. Categories are single and multioperator

The use of packet, a spotting net, or logging assistant makes you multi-op. Use of a computer does not

Exchange RS(T) plus prefix or country abbreviation (W/VE will send RST plus state/province)

Score 2 points for contacts with stations in own country, 5 points with stations in other countries in the same continent (continental boundary as for WAC), and 10 points with stations in other WAC continents. Points for contacts with /MM stations depend on their location. Countries as per ARRL DXCC list.

Multipliers include U.S. states (max 48. KH6 & KL7 are not included); Canadian provinces (max 13, including VO1, VO2, NB. NS. PEI, VE2, VE3, VE4, VE5, VE6, VE7, NWT, Yukon); DX countries, including KH6 and KL7; maritime mobiles, W/VE contacts can be claimed for state/province multipliers, but NOT for country multipliers. Indicate the multiplier in the log only the

first time it is worked. The final score is the total OSO points times total multiplier (U.S. states + VE provinces + DX countries + maritime mobiles). The preferred format for hardcopy logs is 40 contacts per page. with contacts and multipliers sub-totalled on each nage.

Check sheets are required for logs containing 200 QSOs or more. Include a summary sheet showing call/name/address, category, score, station details, a signed declaration that all rules were observed, and any anecdotes/observations, Indicate CW or SSB on the envelope and mail to: "CO 160 Metre Contest", 76 North Broadway, Hicksville, NY 11801. Mailing deadlines are 28 Feb for CW, and 31 March for SSB.

Certificates will be awarded to the top scoring stations in each DXCC country, and where scores are close, to runners-up.

ARRL Novice Roundup The object is for novice and technician

operators in the U.S and possessions to work as many other stations as possible, on authorised modes and frequencies, between 0000z 30 Jan and 2400z 7 Feb. Exchange RS(T) plus country (W/VE will send RS(T) plus state/province). As VK novices count as "other" and are on the same footing as full calls (according to the '92 rules), this contest is of limited interest outside W/VE. Brief details are included here, however, to encourage VK participation and possibly give some US novices their first VK contacts

PACC (Holland) CW/SSB DX Contest

The PACC is another popular European contest, with both phone and CW held on the same weekend, and is scheduled for 1200z Saturday to 1200z Sunday, 13/14 Feb. The object is to work as many Dutch stations as possible.

All bands 160 to 10m may be used, excluding the "WARC" bands. CW only on 160m Stations may be worked only once per band, regardless of mode. Categories are single and multioperator.

Exchange RST plus serial number starting at 001. Dutch stations will also send a 2 letter code indicating their province. Possible codes are. DR FR GD GR LB NB NH OV UT FL ZH ZL

Score 1 point per Dutch QSO, Final score is total OSO points times total Dutch provinces worked on each band (max 72). Mail logs by 31 Mar to: PACC Contest.

PO Box 499, 4600 AL Bergen op Zoom, The Netherlands. Certificates will be awarded to the top scoring stations in each category, in each country and call area of VK. ZL etc.

RSGB 160 Metre Contest

This contest is scheduled for 2100z Saturday to 0100z Sunday, CW 13/14 Feb, and SSB 27/28 March. The object is to work as many British Isles stations as possible (GI is considered part of the British Isles, but not EI).

Categories are (a) British Isles and (b) Overseas including El, single operator only, Frequencies are 1820-1870 Khz, CW only, Exchange RS(T) plus serial number start-

ing at 001. British Isles stations will include their county code. Score 3 points per QSO, plus a bonus of 5 points for the first QSO with each county. Send log, summary sheet, declaration etc.

by 1 March to: RSGB HF Contests Committee, c/o S. Knowles G3UFY, 77 Bensham Manor Road, Thornton Heath, Surrey CR7 7AF, England. Certificates will be awarded to the leading three entrants in the overseas category.

Spanish RTTY Contest

This contest is scheduled for 1600z Saturday to 1600z Sunday. Feb 13/14. The obiect is to contact as many stations worldwide as possible, on RTTY, 80 to 10m. Categories include single operator single band, single operator multiband, multioperator single transmitter, and SWL.

Exchange signal report and CQ zone. Spanish stations will send signal report and

province. On 10-20m score I point per QSO with stations inside your WAC continent, and 2 points with stations outside your WAC continent. On 40 and 80m, the QSO points are tripled. OSOs between stations in the same country can be claimed for multiplier credit,

but not OSO points. The multiplier is the sum of the DXCC countries and Spanish provinces (max 52) per band. The final score is the total OSO

points times the multiplier. Send log, summary, declaration etc. by 9 April to: EA RTTY Contest, c/o EA1MV Antonio Alcolado, PO Box 240, 09400 Aranda de Duero (Burgos), Spain,

Results of 16th Annual VK6 3.5MHz CW/85B Contest

CW Section: VK6AF 1800 VK6AFW 1350 VK6BWI SSB Section: VK6XG 15456 VK6W1H 10868 VK6AFW 10290 VK6RG 8626 VK6DE 8424 VK6AMB 6916 VK6MO 6494 VK6BW1 5250 VK6DA 2948 VK5AYD 2184 VKSNYD 2184 VK6NRE 1800 VK5PMC 972

Conditions for both sections were very good, with some good CW contacts with all of VK, and some DX contacts to ZL.

More participation by VK6 stations would have been appreciated by all, especially in the CW section, so how about it next time! It's a friendly contest of only 3 hours duration.

73s. C. Waterman VK6NK

Regional Results of 1992 ARRL DX Contest

(Shown in order: call, score, QSOs, mul-(uplier, band, M=multiband)

CW Single Operator:									
	VK2APK	1,033,968	1657	208	M				
	VK2AYD	226,800	525	144	M				
	VK6HG	29,394	142	69	M				
	VK2DID	11,844	84	47	M				
	VK2AYK	1,632	32	17	40				
	VK4TT	20,640	160	43	20				
	VK4XA	133,002	821	54	10				
	VK8BE	2,280	40	19	10				
	VK9XM	(Lord Howe	Isl, W	/5BOS	opr)				
		6,570	73	30	10				
	ZL3GQ	130,845	793	55	40				
	P29DK	40,545	159	85	M				
Phone Single Operator:									
	VK2AYK		1094	151	M				
	VK5GN	275,940	630	146	M				
	VKIPS	102,900	343	100	M				

VK2ARJ	219,240	1260	58	10
VK8TM	131,040	780	56	10
ZL4NF	193,914	567	114	M
ZL2AH	152,028	492	103	M
ZL2LOW	126,498	727	58	M
ZLIIM	20,043	131	51	M
ZL2AFY	3,813	41	31	M
P29DX	2,003,100	3035	220	M
Continental	leaders for	Oceani	ia inchi	de:
VK2GAH	(10m phone	(:		

ZL3GO (40m CW) The top 10 single band scores include VK3DZM 9th outright 80m phone ZL3GQ 6th outright 40m CW (from QST Oct 92)

FTAC Notes

VK3DZM (80m phone)

John Martin VK37.IC FTAC Chairman

Call Book Update

Here are some corrections which just missed out on the deadline for inclusion in the 1992-1993 Call Book. The Elizabeth Amateur Radio Club has

advised that its repeaters are all operational. The Packet systems are on 144,800 and 439.050 MHz. The club also operates a beacon on 1296.550 MHz and has one planned for 2304,550 MHz. The Yorke Peninsula Repeater Group is

testing VK5RLH (146,925) on Bumbunga Hill. It serves the mid North and all around Spencer Gulf, Other data is T, 80, 430, 5.0,

VK3REG (146.650) is to move to Mt Cann (530m) by early 1993, VK3REB (146,900) is now on Mt Nowa Nowa (354m). VK3RGO (147,050) has an ERP of 20W. The list should have included VK3RHO

(146.850) Mt Buller, Eastern Victoria, O, 30, 1862, 2.5, VWE.

In the beacon list, all entries for VK3RMV should be deleted, and VK5RLZ added on 1296 550 (o) and 2304,550 (P).

The 50 MHz band plan in the Call Book contained an oversight on my part. The footnote relating to time-shared beacons on 50 MHz should have been deleted, as the time-sharing has been dropped. ar

Remember to leave a three second break between overs when using a repeater.

127

80

36

58 10

VK3DZM

VK2GAH

Commonwealth Contest 1992 — Results

Compiled by John Tutton VK3ZC

Although in excess of 60 different VKs were heard exchanging serials in this year's contest, only 32 of them submitted logs as part of the grand total of 132, the largest for some years.

Conditions were quite good, and locally, the average scores were well up on recent years. Many would have been very pleased to work ZD8LII and VP8GAV whose signals came through very well on the Sunday afternoon, and had great pile-ups on them

from this area. The old VE6OU seems to have settled down in Ontario and with his new call VE3EJ, really spreadeagled the opposition with what must surely be an all time record

score. Three VKs made the top ten, with VK2BJ's 6255 bettering the previous Australian record of 6190 set by VK6LW in

19	90.						
Top	Ten	90	40	28	15	10	Total
1.	VE3EI	685	1885	2340	2195	1310	8415
2.	VE7CC	400	1385	2085	1990	1615	7485
3.	ZL3GQ	770	1115	2035	2105	980	7005
4.	ZD&LI	150	1265	1760	1860	1695	6730
5.	VKZBJ	685	1180	2105	1365	920	6255
6.	VK2APK	740	960	1960	955	845	5460
7.	ZC4CZ	270	965	1475	1235	1165	5110
8.	G3MXJ	275	915	1450	1250	1170	5060
9.	C56/GH3YOR		515	1375	1320	1405	4615
10.	VK4XA	395	695	1680	1185	660	4535

Australian Scores										
	80	40	23	15	10	Total				
5 VK2BJ	685	1180	2105	1365	920	6255				
6 VK2APK	740	960	1960	955	845	5460				
10 VK4XA	395	695	1680	1105	660	4535				
21 VK5BN	475	510	1380	865	405	3635				
25 VK5GZ	350	675	1520	765	155	3465				
29 VK3ZC	440	910	940	775	200	3265				
40 VK8HA	75	325	990	580	745	2715				
41 VK6RU		325	930	825	605	2685				
52 VK3DQ	415	435	985	250	225	2310				
55 VK2EL		500	1090	655	50	2295				
55 VK4OD	325	360	835	775		2295				
56 VK2DID	255	625	575	640	150	2245				
57 VK6BB	75	345	800	620	375	2215				
63 VK4XW	315	560	605	535	50	2065				
66 VK2AYD	295	600	720	380	25	2020				
76 VK2AQF	280	510	665	305		1760				
77 VK3XB	255	325	665	505		1750				
82 VK3BXA	80	485	785	125	100	1575				
87 VK6RZ		460	425	435	021	1470				
92 VK7RY	260	450	300	200	150	1360				
95 VK6HG		100	450	445	205	1200				

98 VK2AIC DI VK3XF	200	400		355	305	995 875
I VK7GB		190	15	[00	75	380

Single Band Entries

3.5	MHz	
1.	VKZETM	410
7 M	Hz	
1.	VK7RO	1080
2.	YK3APN	890
3.	VK6LW	690
14 k	ALL:	

 VK6AJ 2005 2. VK4TT 1985 3. VK3MR

1090 21 MHz

VK5AGX 910

Other Pacific Area Scores

•		- monito	~100	400166
3.	ZL3GQ	7005		
П.	ZLIAIZ	4430		
17.	ZLIMH	4020		
65.	ZLIHV	2055		
72.	ZL2BCH	1820		
81.	ZL2BRT	1580		
	The folio	owing Com	monweal	th Call Areas

were active during the event; A2, C5, G. GB5CC, J8, P2, P29HQ, V4, V8, VE1-2-3-4-5-6-7, VK1-2-3-4-5-6-7-8, VOI. VP2M, VP5, VP8, VP9, VS6, VU, Z2, ZB. ZC, ZD8, ZL1-2-3-4, 3B8, 4S7, 5B, 5Z,

6Y, 7Q, 8P, 9J. No doubt many VKs would have been pleased to pick up a few of this lot.

RSQU Comments

"Canada was the place to be for top honours this year and congratulations to John Sluymer VE3EJ (formerly VE6OU/3), for his record breaking score of 8415 points, beating runner-up Lee Sawkins VE7CC by nearly a thousand points. RSGB HF Committee Chairman Bob Whelan G3PJT, at the start of a business trip to British Columbia, used VE7SV's station to lead the single band entries. Single band entries are not to everyone's taste but they do allow operators to grab a reasonable amount of sleep while staving competitive, and the single hand entries have been tabulated separately this year to make for easier comparison.

In the UK, Dennis Andrews G3MXJ. takes the Colonel Thomas Rose Bowl, followed by Jan Fisher G0IVZ, in his first attempt in BERU. Special mention must be made of Frank Cooper, G2QT this year is his fiftieth entry in BERU, an incredible achievement. Licensed in 1933, he first entered in 1935 and has only missed one year - 1968- when he was abroad. Even then he made arrangements to operate from VP6 (now 8P6) but circumstances meant that the station which he was supposed to use was unavailable. Now aged 78 and retired less than two years, he spends a great deal of time on antenna experiments and has notebooks containing all the results of his antenna work going back to 1933. In addition to a homebrew three element quad on a commercial lattice tower for HF, he has five wooden masts between 50 and 60 ft in height which he raises and lowers single handed with the aid of a winch for maintenance purposes. (The creosote does its job well as half of one mast is pre-war).

Currently the masts support a fiveelement and two three-element wire vagis for 40m, and a W8JK for 80m. He modestly describes himself as "a consistent also ran" but it is the enthusiasm and dedication of stalwarts like G2OT which make BERU such a special event.

Entrants again suffered ORM from the Japanese 59-Magazine CW contest, but thanks to the considerable efforts of David Rankin 9VIRH, and Masavoshi Fujoka. JM1UXU, the Chairman and Secretary respectively of IARU Region 3, the Japanese have restructured their event into separate 48-hour LF and HF contests to be held on 8-10 January from 2200h and 9-11 April from 2300h (1993 dates), thereby avoiding a clash with BERU. The best way of ensuring that we do not get jumped on by another contest is to keep the activity level high, and this year's record score indicates that the trend is in the right direction. See you all on the second weekend in March 1993, and bring a friend!"G3AEZ

1993 Commonwealth Contest

The Commonwealth Contest for 1993 will be held from 1200Z 13th March 1993. to 1200Z 14th March 1993. The rules will be published in the February 1993 issue of "Amateur Radio" magazine.

Sign up a new WIA Member today — use the form on the reverse side of the AR Address Flysheet.

Divisional Notes

VK2 Notes

Tim Mills VK2ZTM

A Happy New Year to all and hopefully better than the last. The change of years is an important time for the Division. The financial year starts for the Division on Jan 1st. Before we know it there is another AGM which will be on Sunday May the 2nd The close for agenda items and Council nominations is Wednesday March the 17th, Annual reports have to be in the hands of the Secretary by January 31st.

The Parramatta office will close 18th December and reopen January 11th. First Wednesday night opening January 13th. The VK2WI broadcasts for December 27th and January 3rd will be morning only. Both sessions resume January 10th. Mail and FAX handled as usual during the holiday break. The first Trash and Treasure for 1993 will be Sunday afternoon the 24th January. earlier in case the last weekend becomes a long weekend. The Divisional component of the sub-

scription for 1993 remains unaltered.

1991 Examus

The exams conducted by the Division at Parramatta will be Sunday February 21st. May 23rd, August 29th and November 7th. Note the change in February to that previously advised. The Gosford Field Day has moved to a later date as well as a change of venue (Wyong Racecourse - Sunday February 28th.) Since almost everyone attends the Central Coast Field Day you may have been lonely at the exam.

During November there were three meetings which addressed aspects of the hobby in VK2. The first on the 21st saw 25 with an interest in ATV meet to discuss channel sharing in the Sydney region. On the 22nd over 40 packet users met throughout the day to cover the wide ranging agenda. Details have already been distributed via the packet networks A "NSW packet radio committee" was established by the forum attendees. It's an advisory committee with the charter "to improve, oversee and co-ordinate packet radio in New South Wales", though it has no regulatory powers. The committee is to meet again in February,

The third meeting on the 25th was for the Divisional Volunteers on the planning underway to improve the Division's operation. The functions and services of the Division had been raised at the open forum in August. The investigation following the forum identified five distinct sections, being, Administration, Member Services, Education, Advertising and Publicity and finally Technical Services. These sections are made up of more than 50 functions and services currently provided by the Division. An expanded report is to appear elsewhere and via the broadcasts.

Repeater Applications

During November the following applications were processed and forwarded to the DOTC, For WICEN (NSW) Inc portable repeaters for operation anywhere in VK2 on 2 metres, VK2RFI on CH 7150 and VK2REP on ch 7175. A 70 cm packet link channel on VK2RWI. A 10 metre voice repeater for the Wagga Wagga DX Group on 29.640 Tx - 29.540 MHz Rx, requested callsign VK2RHF. A packet repeater on 2 m for the Far South Coast ARC on ch 4875 & 70 cm linking. Goulburn ARS to add an additional 2 metre packet channel 7575 to VK2RGN, Summerland ARC to add a 6 metre repeater to VK2RIC on ch 3550 and plan to establish a 2 metre voice repeater - VK2RPG - near Pretty Gully. Applications were being processed for

Tamworth RC for a 70 cm packet link, and a packet channel 4800 and 70 cm links for the University of Technology Sydney ARS at Broadway.

A reminder to repeater groups that the guidelines for repeater establishment, operation and maintenance is detailed on page 27 of the new callbook. Contact the VK2 office for the required paperwork to establish or alter a system. This speeds up the processing. The DoTC will hold or send on

paperwork to the Divisional repeater Coordinator if you send it direct to them. Please check the new callbook for your current repeater listings. Advise without delay any corrections for next months DATA issue of "AR"

Join or Renew and Win a Rigi

The NSW Division is running a special membership and recruitment promotion:

members who renew, or non-members who ioin up, between 1 December 1992 and 28 February 1993 will be eligible to win a new

rig from Kenwood. But wast! There will be not one, but

TWO, ries to win. First prize will be a TM-732A dual-band 2m/70cm mobile rig, while second prize

will be one of the just-launched TM-28 2m handheld rigs. Both prizes will be awarded by way of a draw. And for new members who join up in the

period there's a bonus: Kenwood is donating an amateur radio world map "place mat" to the first 100 new members to sign

Kenwood Electronics Australia has generously agreed to sponsor the promotion by donating the prizes. If you haven't heard the full details on the VK2WI Sunday news broadcasts yet, then listen out as soon as you can.

VK6 Notes Harry Atkinson VK6WZ.

The year 1993 has begun and with the festivities behind us it could be a good time to think about the future.

There can be no doubt that '93 will end with our hobby looking a lot different compared with the situation at the end of '92, De-regulation is sure to become more widespread; the old rules many of us were brought up on will have disappeared; there will be a greater responsibility on each and every licensee to "keep his nose clean" without the fear of someone watching every move from "on high".

Regrettably, there will be some who confuse freedom with open slather but the vast majority of amateur operators will continue to take pride both in our hobby and in their reputations as good citizens.

The President VK6LZ and councillors of the Division wish you a happy and successful New Year.

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New Members

Our usual warm welcome is extended to the following who joined the Division during

November				,
W.K.	(Wendy)	Anderson	VK2WAD	Castle Hill
P.C.	(Percival)	Bulliman	VK2TEN	Miller
R.	(Richard)	Close	VK2BRB	Wallsend
J.C.	(John)	Cowell	VK2MML	Mt. Pritchard
J.	(John)	Dudley	VK2MMF	Hazelbrook
P.J.	(Peter)	Ferrari	VK2BXQ	Tullamore
S.A.	(Stephen)	Knowles	VK2GVR	Milperra
G.	(George)	Pal	VK2PGA	Wollstonecraft
C.	(Claude)	Pradier	VK2CXC	Albury
R.	(Ronald)	Spain	Assoc	Toongabbie
R.A.	(Robert)	Stephenson	VK2KKN	North Sydney
P.D.	(Paul)	Thomas	VK2WPT	Tottenham
S.A.	(Scott)	Watson	VK2TAR	Bligh Park
A.H.	(Mick)	Wood	VK2VX	Frenchs Forest
L.	(Luigi)	Zilli	VK2TLL	Bossley Park

How's DX

Stephen Pall VK2PS PO Box 93 Dural NSW 2158

Happy New Year to you all. The material for this column was written on 24th of November, because of our neculiar Christmas Holiday "shut down" to reach you (hopefully) in the first week of January. The November issue of this magazine, with the news of the proposed shortening of the length of "How's DX?" column, was delivered to the readers between the 11th and the 17th of November, sudging by comments read in letters since received, and heard over the air. The last ten days produced a number of letters, faxes and ten telephone calls. This number in my opinion is not adequate to give a true picture of the opinions of readers of this column. So if you care, voice your oninion immediately. The decision has to be made soon!

Lord Howe Island VKSL

Lord Howe, a sub-tropical island lying in the South Pacific is approximately 700 kms north-east of Sydney or 700 kms south-east of Brisbane, an airflight time of approximately two hours. The island was discovered in 1788 by Lt Henry Lidgbird Ball and it is part of NSW with a local Administration Board which looks after essential services on the island. The local population (under 300 people) has two sources of income; the well known Kentia palm which is exported to all the corners of the globe, and tourists, whose numbers are limited to a maximum of 400 at any one time. This limitation in numbers requires quite some advance planning from intending tourists and radio amateurs looking for an ideal DXspot. This was the scene that Bill VK4CRR and Len VK4DDK found when they operated from Lord Howe from the 18th to the 25th of November They had difficulty finding a place to stay as all accommodation was booked out until February 93, and most accommodation places do not want radio amateurs. I wonder why? Bill and Len operated under the callsign VK9LD and OSLing will be done by Bill VK4CRR, direct only, with SAE and return postage. No bureau cards will be accepted. Bill's address is; W Horner, 26 Iron Street, Gympie, Queensland 4570

Cocos Island TI9

Cocos Island or Isla del Coco to gave its proper Spanish name, is a rocky outcrop and lies 5 degrees 32 minutes North and 87 degrees 04 minutes West in the Pacific Ocean, and is part of Costa Rica. Jose, TI2JJP and a group of helpers kept Cocos Island, TI9JJP on the air from the 1st to the 11th of November on all bands. mostly SSB with some RTTY and CW mixture. They were good copy in Sydney around 0417 UTC on the usual 14195 SSB DX band segment. QSLing direct only, to TI2AOC Cecilia Artinano de Pastora, Box 529, Centro Colon 1007, San Jose, Costa Rica. US\$1 preferred for return postage.

Jordan JY40

His Majesty, Alhussein Ibn Talal, better known as King Hussein of Jordan, also known under his amateur callsign as JY1. celebrated his birthday on the 14th of November. The day marked also the 40th anniversary of his ascension to the throne of Jordan. To celebrate this double anniversary the Jordanian amateurs used the special prefix of JY40 followed by their individual suffix a number of days ending on the 20th of November. Zedan's net, JY3ZH on 14250 at 0500 was very busy with traffic from all over the world. At least a dozen 3Y40's were heard on the East coast of Australia. Those who want to obtain a commemorative diploma (minimum five contacts with JY40 stations) signed by the King himself, should send their OSL cards, application form and ten IRCs to the Royal Jordanian Radio Amateur Society, Box 2353, Amman, Jordan.

Saint Helena ZD7

Saint Helena, a small mountainous volcanic Island in the Atlantic Ocean (15 degrees 57 minutes S. 5 degrees 42 minutes W) has a surface of 122 square kilometres with a population of about 5000 people. It is a British Island and the administration centre of other British Islands (ZD8 and ZD9) in the southern part of the Atlantic. Its only significant fame is that Napoleon Bonaparte lived here in exile for six years until his death in 1815. There is not much activity from the island, so it is always a challenge to work a ZD7 from VK when it pops up on the bands. Bill. VK4UA was instrumental of persuading Chuck, ZD7CRC to keep a lookout for the VKs and ZLs on 14153 SSB at around 0730 UTC in the early part of November. Chuck was a reasonable copy on the eastern part of VK for many days for the benefit of the Australians and New Zealanders. QSL to Chuck Chalmers, PO Box 126, St Helena Island, South Atlantic Ocean.

Pacific activity by Europeans

Ouite a number of Europeans were island hopping in November and December and are still in the Pacific area this month. Mike, G4IUF was active from New Zealand (N6SVL/ZL), from Cook Islands (ZK1IF), American Samoa (KH8/N6SVL), Fiji (3D2UF), and Western Samoa, 5W1VL. Three former East German amateurs, Tom. Y31XO, Frank, Y32OD, Holger Y58IO, and (YL) Burgst Y58AO will tour Fin (3D2). Solomon Islands (H44). New Caledonia (FK8), and Walls Island (FW). They are using a homemade amplifier with a "no transformer" direct voltage doubling power supply. They might visit Tuvalu (T2), and/or Nauru (C2) before they return home at the end of January.

Karl, DLIVU was also on the move. His operating schedule looks something like this; T32VU (Christmas Is), KH5/DLIVU (Palmyra), T31AF (Canton Is), T30CT (Tarawa), T33VU (Banaba), C21NI (Nauru), V63VU (Kosrae), KC6/DLIVU, (Ponape), DU1/DL1VU (Manila), Most of his operation is in CW including WARC bands on the usual DX frequencies. Everyone contacted will receive a OSL card via the Bureau.

Hungarian DX Expedition to T31 and T33

Eli, HA9RE plans to go to Phoenix Island, Central Kırıbati (T31), and Banaba (Ocean) Island T33 in January, February this year. This is his third trip to the Pacific. In December 1990 February 1991 he activated, in company of Miki (HA8XX), Chatham (ZL7), Niue (ZK2) and Cook Islands (ZK1). January to March 1992 saw activity from West Kiribati (T30) and from East Kiribati (T32). In the course of these two expeditions almost 100,000 contacts were made.

Future DX Activity · Ken, WA4OBO is planning a second trip

- to Chad (TT8) in February or March. The proposed DXpedition to Palmyra Island (KH5) and Kingman Reef has been postponed until February
- . It has been reported that ZS7ANT is active in the Antarctic until mid-February. · Bernhard, DF3ZJ, will be active as 9X5AB until August 1994, OSL via DL6NA or direct to Bernhard Ahlborn, BP 420, Kigali, Rwanda, Africa,
- There is a new operator at Crozet Island. FDINGG will be active as FT4WD, but he is not an experienced DX operator. QSL to F6AXX
- Jan Mayen Island should be heard during the northern winter with JX7DFA and JX3EX being active, OSL to LA5NM.

- HF0POL from the South Shetland Islands is very active mainly in CW on 3.5, 7, 14 and 28 MHz.
 It was appropried on the six that
- It was announced on the air, that ZL2AHC is planning to go to Chatham Island (ZL7) in March 1993

interesting QSOs and QSL Information

Note: callsign, name, frequency, mode, UTC, month.

FY5FP, 14016, CW, 0940, Oct, QSL via

Bureau.

TJIGG, 14015, CW, 0630, Nov, QSL to 12EOW Ermino Pandocchi, Via Moretto da Brescia 40, I-20133, Milano, Italy.

OD5/SP3LSE, Zenek, 14006, CW, 0653, Nov, QSL to SP7EJS Antoni Luchota, Box 82, 96-100, Skierniewice, Poland. FG4FR, Franz, 14010, CW, 0511, Oct.

QSL to FG5BG Georges Santralikan, 44 Rue Amedee Fengarol, Brest, F-97130 Capesterre Belle Eau, France. 7X2VFK, Mohammed, 14243, SSB,

0658, Nov, QSL to PO Box 467, Djelfa, 17000, Algeria, Africa.
ZP5CGL, Laca, 14192, SSB, 0958, Nov.

ZP5CGL, Laca, 14192, SSB, 0958, Nov. QSL to Bureau. FY5FJ, Richard, 21205, SSB, 0441, Nov.

QSL to IK2HTW Angelo Morello, PO Box 41, 1-21021, Angera, Italy. OD5PL, 14252, SSB, 0703, Nov, QSL to HB9CRV Hermann Stein, Bruelmatten 13,

CH-4410, Liestal, Switzerland. YIIBGD, 14252, SSB, 0610, Nov, QSL to YJ3ZH Zedan Hussein, Box 11020, Am-

man, Jordan.
ZL7AMO, Ron, 21205, SSB, 0521, Nov.
QSL to ZL1AMO, Ron W. Wright, 28
Chorley Ave., Massey, Henderson, Auckland, 1208, NZ.

WIGWN/KC4, Warren, 14159, SSB, 0955, Nov, QSL via the W1 QSL Bureau to home call.

From here and there and everywhere

- OD5ZZ was heard saying that there will be many new amateurs on the air soon, from Lebanon.
 Les. VK4DA advises that a letter sent to
- SZAFM to a Narrobi PO Box number was returned after 10 months, marked "insufficient address". However, the "greenstamp" was missing from the returned envelope.
- 7X2VFK was a special event statton in Algeria commemorating the start of the Algerian revolution in 1954. The station was active from the 1st November to the 10th of November on 10 to 160 metres.
 There are still quite a number of amateurs who are waiting on cards from

Romeo's Afghanistan, Myanmar, Spratly and other operations. Rumours abound about the incorrect QSL routes, alleged non-OSL managers, missing mail, missing contents of envelopes etc. Romeo has now sent a lengthy FAX to the "DX News Sheet" explaining some OSL routes. Here is a shortened version which applies mainly to VK/ZL stations. ISOXV, ISIRR (1990), 3W7A 3W100HCM, XV100HCM, XV0SU cards go via W4FRU or Romeo's Bulgarian address, YAORR (Dec 91), ISORR (Sept 91), XYORR to the Bulgarian address: 9D0RR (Aug 92) via NT2X and all others, like EKORR, MM, 3W3RR again to the Bulgarian address. Romeo has all the original logs. The American and Canadian operations of Romeo go via the W1 QSL Bureau. Romeo's Bulgarian address is PO Box 812, Sofia 1000, Bulgaria. Romeo says that the Sofia address is now absolutely secure. However in the distant past, a lot of envelopes (approx 2500) were "lost", and cannot be recovered. Romeo further says that he is not a member of the ex-USSR OSL Bureau (Box 88, Moscow) therefore

garian address. A "lot" of cards sent to various ex-USSR addresses were "lost" by postal workers.

If you hear the beacon of the "Earthwind" balloon on 28303 kHz, send your SWL report to Richard, N8IWJ.

the OSL route is direct only to the Bul-

- NP2CG, Lee, was active from St Thomas, US Virgin Islands. QSL to WAYNHA.
- According to the 1992 most wanted DXCC Countries survey, conducted by "The DX Magazine" Peter I Island (3Y) is required by 67.8% of the DX-ers surveyed, and is ranking No I in the list.
 Bhotan A5 is required by 93.9% (No 3).
 Libya (A5) is required by 93.9% (No 3).
 How thungs there changed? Albrain (2A).
 How things there changed? Albrain (2A) is the last in the (10 most manted countries the DX-ers.
- JU830C is the special event station activated by the MRSF, (Mongolian Radio Sport Federation), celebrating the 830th anniversary of the birth of the ancient Mongolian Leader, Chingis Khan. OSL to JTIKAA.
- The validity and/or expiry date, or whether the RIC which bears the wording "surface mail" is valid for Air Mail, has been explained by Sandy, NTPOP, who is a US postal employee. Sandy says, in "The DX Magazine" that every IRC issued after 1975 is valid and will beaccepted for Air Mall postage in countries which are members of the Universal Postal Union.

- If you worked TL8NG, he is Gene, from the Central African Republic. He is active mostly on CW but he has been heard also on various nets on the 20 metres band QSL via WAIECA.
 - It was quoted by G3KLL as heard from UC2AB as saying, that the UC2 (Byeloruss) outgoing QSL Bureau has closed down due to lack of funds.
- Ron, ZLIAMO was quite active as ZLTAMO mainly on CW, but showed up quite often on various SSB nets. QSL direct with return postage to home call.
 A number of Spanish amateurs received
- a one year special authorisation to operate on 6 metres with the EH prefix.
 If you heard VK8QQ operating porta-
- If you heard VK8QQ operating portable from Bathurst Island, he was DF5UG.
 The second "International Border Meet-

ing" of radio amateurs took place on the 19720th September in the Hungarian City of Sopron, near the Austrian, Slovak border. 550 amateurs attended from 9 countries. A number of topics were discussed dealing with VHF-UHF Satellite EME communications before many representatives of Europe and US visitors.

One does not hear much of Mirsk,
VKEDNI. A quiet DX-ev who since he
VKEDNI. A quiet DX-ev who since he
from many locations. I but to name a
few: OE[81], DL(86), VKSN(87),
VYL(87), SYL(87), SYL(87),
VYL(87), SYL(87), SYL(87),
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QSLs Received

Note: There was quite an interesting selection to report on. However, this article is already too long, so I decided not to publish the list this month. For the same reason, there is no DX related photograph is this month's column If you must them, then please write me a few lines.

Thank you

Many thanks to: VK2CSZ, VK2DID, VK2DXI, VK2EM, VK4CRR, VK4DA, VK4DDK, VK4OH, JY3ZH, HA5BSW, HA5HR, HA9RE, and the following publications: QRZ DX, The DX Bulletin and the DX News Sheet.

Good DX and 73

Murphy's Corner

November Issue 1992 Article — Morse Trainer for GW Basic, Page 12

A few errors crept in the typing:

1. Line 60 contains 8 characters too many
in the underlining.

2. Line 110, the word 'Enter' should be

between single quotes, not double.

3. Line 320, the x symbol should be a (less than symbol). This line should read; 320 IF K / KK THEN 250

Production Editor's Note — We tested the program on the WIA IBM compatible computers and it works very well. If any member would like a copy on disk (to save typing), we can provide same on receipt of a formated floppy disk (IBM format, Sem or 12cm) and a SASE, alternatively send 3.00 to cover posings and the disk to me of the same of the same of the same of the Cantifield South Viz 31G. Please allow a few dars for turns-around. w KSUV. Communication was Bernie's life. Even when he was confined to bed at the last, he kept in touch with his friends on the 40 metres "Shavers" Net" via a two metre link and his Barlow-Wadley receiver.

Bernie will be remembered also by the many who were given willing assistance by him over the years. He will be missed. We extend our sympathy and best wishes

to Jean, his XYL, and Jenny and Kim, his family.

Bob Fires VK6BE

Norm Richardson VK4BHJ

Norm was a traditional reticent English
gentleman with a lifelong interest in radio
and shortwave listening.

During WWII he served in the English Army intercepting coded German traffic which was deciphered at the noted Bletchley Park signal centre. Serving later in the Malayan crisis, listening through heavy atmospheric noise impaired his bearing, though he could copy 35 WPM on a typewriter.

Fortunately for Amateur Radio, Norm also gained a passion for detecting weak signals, and more importantly, locating their

origin. He was a member of RSGB for many years, and in his early 70s left England and joined his son in Mt Isa. After a couple of years there, he and his wife moved to Everton Park where Norm became involved again in monitoring. The WIAQ appreciated his skills by awarding him the WIA 75th

Silent Keys

Due to increasing space demands obituaries should be no longer than 200 words.

The WIA regrets the passing of : McMahon VK2AC L H (Leo) Ronald VK2FHR H T (Hugh) Tolhurst VK2GOS R L J (Rob) Warren VK3CRW J D (John) Sweeney VK3IH J K (John) Pollard VK3QZ N A (Norman) Richardson VK4BHJ VK4DD MI Stinson S (Stefan) Demchenko VK6UC

Bernie Gates VK6KJ

The many friends of Bernie Gates VK6KJ will be saddened to hear of his passing on Friday 6th November 1992 at the age of 76 years.

Bernie had been in indifferent health for some years, but the final illness lasted only a few weeks during which time he was confined to bed.

Bernie was active on the HF bands for over 40 years, working his scheds on 80, 40 and 20 metres almost to the time of his passing. Many VKS and VKS amateurs will remember him for his proving the VHF path between VK6 and the southern states in the 60s and 70s, when he worked many stations over the Bight on two metres.

SOME THINGS HAVE NO COMPARISON



The magazine for the serious radio operator

AT YOUR NEWSAGENT EVERY MONTH

Anniversary Medalhon and Certificates of Ment in 1986 and 1991, for being one of the most effective Intruder Watchers in Australia

Norm was 86 when he died of a sudden stroke on 6th November 1992, leaving a large gap in the ranks of the few Intruder

Watchers

Our sincere sympathy goes to his wife Rose, and family.

Col VK4AKX Guy VK4ZXZ Tom VK4RTW

Nuch Tolhurst VK2GOS I regret to advise the sudden death on Monday 23rd November 1992 of Hugh Tol-

hurst, VK2GOS, Secretary/Treasurer of the Great Lakes Radio Club Incorporated. Hugh was aged 70 years.

Whilst out cycling in the early morning, he suffered a massive heart attack which took his life before medical assistance could arrive.

Hugh, who obtained his full call only last year, embraced amateur radio with all the enthusiasm which characterised his other

loves of solf and photography The deenest symnathy of his many friends ones to his wife Rosemary, and his family. The world is noorer for his passing.

Stan Ellis VK2DDI President Great Lakes Radio Club Inc.

John Kennath Polismi VK3QZ/VK3TCK

John Pollard became a Silent Key at home while preparing to work on his antenna. He had a heart attack on the 11th November 1992 at age 61.

I first met John in 1988 when after studying for his novice licence with VK3BSM of the Eastern Zone, he wished to further his theory to the full call. He joined a course I was running at the time. He successfully passed his full call and got the callsign

VK3OZ from Graham Colley when he moved to Oneensland.

John originally came from England and migrated to Australia in 1973 worked as a Civil Engancer on several jobs before moving into the VK3 Eastern Zone in 1985 to work on the Lov Yang Power Station project. His interest in radio started in CB and then he went on to amateur radio as

During his time as an amateur he was a great ambassador for his adonted home, he regularly collected local literature from the Latrobe Regional Commission for inclusion with his OSL cards. He made several major trips around VK visiting people he had met on air and in 1991 he made the local news for his contact with Kuwart during the Middle Fast war John was a great person and a credit to

the amateur radio world. His quick wit and iokes will be missed on the airwaves. Sincere sympathy to Shirley and family. Tom Corrigan VK3XBG

I really would be most grateful if you

Over to You — Members Opinions

All letters from members will be considered for publication, but must be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents

Thanks for AR7

I wish to put on record my sincere thanks to all those who responded to my "Wanted Vic" advertisement in the September issue of AR. The advertisement asked for help in providing a "Kingsley" AR7 receiver for the Scienceworks (Museum of Victoria) collection of Australian designs and inventions.

The response was wonderful with the result that a fully operational, up to specification AR7 complete with power pack, sneaker and rack was handed over on Wednesday 25th November. A very pleasing feature of the operation was that everything used was a cost free donation.

The unit will be on display until at least the end of July 1993.

The full story will appear in a later issue

Thanks again everyone. Alian Doble VK3AMD

Re Gavin Douglas VK3YK (Silent Key)

At the funeral of my father, Gavin Douglas VK3YK on 9th November 1992, there were a number of radio hams present that I did not know, and as a result of confusion on my part and also of the rain, I was not able to speak to all of those present. I wonder if you would be so kind as to pass on my appreciation and thanks to all those people for me.

The radio played a very important part in Dad's life, and it was wonderful to know that so many of his friends were there. Over the years I know he enjoyed the friendship and interest of many people, whether they were regular contacts or occasional when conditions were favourable.

In later years, I think the contact with yachtsmen and women was a particular interest as he had sailed as a young man. He also enjoyed the travellers net, and most recently enjoyed the friendship and support of the VK3UE net.

could pass on the thanks and appreciation of myself and my brothers. Sincerely, Ann Phillins



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A Packet of Packet

Kevin Olds VK1OK 238 Southern Cross Drive Latham ACT 2615

Although a little bit later than anticipated, we finally have the next instalment in the packet column. Already I have started to receive some feedback on the first column which is most encouraging. More would be welcome however. If all goes well we may see something in this column on almost a monthly basis, with items split between basic material for the would-be or novice packeteer and items for those more experienced in the packet world. Interspersed will be some more general interest items which may stir the interest of a few more to try nacket. Packet is more than just Bulletin Board Systems, it has a breadth of interest all of its own. For this months" column I am indebted to Warren Toomey. VK1XWT for the use of his item on "Wormholes - the Last 12 Months" which he presented to the CAPRG Technical Symposium in September 1992. Now over to Warren

What is a Wormhole?

A wormhole is a machine connected to both the amateur radio network (via a transceiver) and another network, and uses this network to transparently pass packet radio packets. In other words, the wormhole is using the second network as a medium for packet transmission. With several wormholes connected by a network, amateur packets can be forwarded over very long distances. Here in Australia, the wormholes are using the Australian Academic Research Network (AARNet) to forward packets. AARNet is a very high bandwidth network that extends across the continent, with AARNet sites at all major academic institutions. AARNet itself forms part of the Internet, a large academic network which runs throughout America, Europe, Canada and Japan. The wormholes use the Internet as a carrier of packets, in a way that prevents the amateurs from accessing the Internet and vice versa.

Wormhole Growth

In the last 12 months, wormholes have proliferated. Around August 1994, there were about a dozen wormholes. Now there are well over thirty, most of which are in Amenca; the rest mainly in Canada, Europe and here. The sole Australian wormhole in 1991 in Camberra has now been joined by wormholes in Brisbane, Newcastle, Sydney and Melbourne. Even more gratifying, the wormholes has increased as well guiden wormholes has increased as well guiden.

Wormhole Services

The wormholes are usually made of comnuters running the NOS program, written by Phil Karn KA9O. Gerard van der Grinten PAOGRI, Johan Reinalda WG71 and others. NOS provides normal AX.25 services, NETROM, and TCP/IP networking. Thus, the wormholes can forward many different types of amateur radio packets not just the TCP/IP ones, Indeed, much of the wormhole traffic is either forwarding of bulletin hoard items via AX 25 or users exploring the NETROM nodes. However, as well as the packet forwarding services, many of the wormholes provide a wide range of user services. These include bulletin boards. binary and text file repositories available using a file transfer service, and nersonal mail service. These services are designed to bring the network to you, rather than the other way around - this decreases the load on the whole network, and localises the network traffic. For example, the wormhole in Canberra offers over 10 Megabytes of amateur information and programs to the local community. These are also available to all the other users who can connect in via the wormholes

New Wormhold Berylcos

1992 has seen the refinement of an existing service. POP, and the arrival (in a hig way) of a new service. Converse. POP is a personal mail server. Instead of having to leave your own TNC/computer running 24 hours a day, you obtain a mail account on the POP server. The POP server then collects your mail for you, and you can log in at intervals, and review/read your mail. This sort of service has been traditionally provided by bulletin boards, but POP has some advantages: it can collect mail from both AX.25 users and TCP/IP users, and a senarate POP service takes the load off the bulletin board, leaving the latter to work solely on bulletins. The Converse service. however, is the biggest service to take off in 1992. If you have seen a DX Cluster, then vou will know what Converse is like - a multi-person QSO. However, with the wormholes, the OSO is now global: nearly every day the Converse chat spans three continents: Australia, North America and Europe. Over a dozen wormholes support Converse. The nice thing about the Converse service is that it is all handled transparently for you. To join the conversation, you connect to your local Converse service -- you are instantly connected to the rest of

the available Converse servers. And the service is optimised to only broadcast your packets to those servers that have active users, if a Converse server has no users, it receives no packets. Converse also has over 32,000 "channels", allowing you to move off to an unused channel if you only want to QSO with a few people, or on a particular topic.

METROM/AX.25 Parameter Standardisation

Because the wormholes forward not only TCPIP packets, but AX.25 and NETROM packets, it was found necessary to standards on the parameters controlling their exchange, especially for NETROM and its oroting tables. The parameters used by the oroting tables. The parameters used by the control of 1800 and AX.25 link quality of 232) have been accepted and er now being used by the other wormholes, and other NETROM nodes as well.

Internet Access by Amateurs

Not only is the Internet a fast way of forwarding amateur packets, it provides a wealth of programs and information to its normal users -- so much so that it can sometimes appear daunting! Early on in 1992,



VHF COMMUNICATIONS

This quarterly publication, especially covering VHF, UHF and Microwaves is essential reading for the serious VHF/UHF enthusiast.

The original is published in German by Terry Bitton, OHG, and the English language version is published by Mike Gooding, G6lQM.

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Subscriptions must reach the WIA by 31st January 1993 to ensure that you receive your first issue for 1993 on time.

there was a push to somehow make the resources of the Internet available to amateurs. This was done by having the amateur TCP/IP network (44.x.x.x) advertised to the whole of the Internet, and having one wormhole act as a gateway between the two. This proposal is a double-edged sword, as it allows amateur and nonamateur machines to communicate, which can in some cases be illegal. To prevent any sort of legal problems, the latest software used on the wormholes prevents Internet machines from connecting to amateur machines, while still allowing connections in the other direction. Thus, amateurs can access the services of the Internet, but not vice versa.

The Future 1992 has seen more wormholes appear. with more services provided by these wormholes. At the same time, the wormhole operation has matured, providing more reliable service to their users. Who knows what the future will bring? However, I'd like to see the concent of bringing services to the user expanded, for the reasons stated above: to ease the load on the wide-area networks, and to speed up response time for the users. However, provision for two-way or multi-way conversations should not be ignored. Wormholes provide a fast and relatively cheap way of packet radio intercommunication over large distances, but I believe it's now time to start thinking about our own long-distance networks, as the wormholes are really not amateur radio. and we have no idea how long the gravy train will last. At the same time, the cost of even 9.6Kbps amateur connections is large, let alone 56Kbps. We should realise that although wormholes are not what we really want, they are there now and we may as well use their services until we can create our own. Finally, 1993 should see the relaxation of the laws governing amateur radio and packet radio operation in particular. It seems appropriate at this time to call for an end to the "protocol wars" that have plagued us over the past few years. We must realise that no one packet protocol is going to suit us all, and we should be tolerant of all protocols that amateurs use. As the regulations relax, I would like to see the development of new, experimental protocols (such as the PACSAT broadcast protocol) to make better use of our bandwidth Thus, let us use the wormholes as an example for our future where multiple protocols are actively or passively supported, and network protocols and applications are designed to make best use of our frequencies. I hope we all can benefit from the resources provided by the wormholes, and at the same time I hope we can start the design of an amateur network that will make them obsolete.

If this has inspired you to want to start your own wormhole, please write to me first - several notential Australian wormboles did not eventuate due to the approaches made to AARNet institutions. For more information, please send some mail with details of your proposal to:

Warren Toomer Department of Computer Science University College, ADFA. Canberra, ACT, 2600.

Pounding Brass

Gilbert Griffith VK3CO 7 Church Street Bright Vic 3741

A Little More History of the Telegraph

Last month we left the five colonies of Western Australia, South Australia, Victoria, New South Wales and Queensland connected together by telegraph on 8th December 1877. Prior to this date was the completion of the most famous of endeavours by Charles Todd in 1872. The Overland Telegraph Line successfully linked Australia with the outside world for the first time. In January 1870 the government was informed by the British Telegraph Company that an undersea telegraph line would be brought ashore at Port Darwin. The original intention was to link up to the Queensland telegraph network at Burketown but Todd convinced the government that in eighteen months he could build a line from Adelaide to Darwin.

Those of us who have driven across the centre will have some idea of the trials that the overlanders would have experienced. The formidable and unknown country had previously been crossed only once by Stuart in 1862 (ten years previously), and had already claimed the lives of other explorers such as Burke and Wills as well as Leichhardt and his party. John Ross and his overlanders had to explore a route with the telegraph line in mind, meaning they had to map sources of timber and water for the following parties, as well as suitable trees for poles

The northern section was supplied by ship from Adelaide to Port Darwin (via the East coast!) with no wharf or jetty available at Darwin. Animal losses were around 30% and even more. At the Roper River depot (96 miles up river) crocodiles would lie in wait for horses coming in for an evening drink at the river.

Desnite monsoon weather and losses of stock and machinery in mud holes, the line heading south from Darwin was raised, only to have the poles condemned shortly thereafter due to termites. This necessitated the importation of iron poles from Britain for the affected sections. It is difficult to imagine the hardships

that would have been endured for a wage

of 20 shillings a week with 3 pairs of leans or moleskins, 3 of boots, rifle, ammunition. 2 hats, belts, knives, pipes and tobacco for perks. In those days it might have been a very attractive wage despite the hardships. These days we are used to the convenience of fast and comfortable transport, power tools and so forth. It is essential to remember that all poles had to be cut by hand and the holes dug using special long- handled shovels to get the required depth of four feet. Then it was necessary to climb the nole each time to drive in the spikes for the insulators and again to install the wire, and all this in temperatures that would, these days, keep most tourists confined to their air-conditioned cars or coaches.

Not only did the telegraph network make overseas trading easier and stimulate commerce, but the fact that the overland telegraph itself was successfully completed removed much of the worry and stress from those who thought that the project would bankrupt the colony of South Australia. Real time transactions were now possible, and even clocks could be accurately set around the country. By 1900 telegraph lines in Australia covered 20,000 miles, with telephones being tried over some telegraph circuits. At the same time radio experiments were being carried out in Sydney, A mere 10 years later the Wireless Institute of New South Wales was formed

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Repeater Link

Will Mc Ghie 21 Waterloo Crescent, Lesmurdie 6076 VK6UU @VK6BBS

This month's Repeater Link has been produced by Will Scott VK4XP, Will (this could become confusing) has already written one article for Repeater Link and has followed it up with a simple in-band link controller. Will's previous article on categorising the various methods of linking resulted in comments from readers on some systems used in Australia. Some are variations on the basic systems as described

by Will. One such system is in operation in South Australia. The Barossa Valley ARC have set up a "satellite link repeater" system to extend the coverage of their VK5RBV voice repeater. What they have is a "simplex" repeater on 147,825. Users of the link transmit and receive on the same frequency. 147,825. The satellite link repeater receives the 147,825 signal and re-transmits it on 146.225 to repeater VK5RBV in Adelaide. The reverse happens with VK5RBV's signal being received by the simplex repeater and re-transmitted on 147.825. This simplex link repeater has the callsign VK5RBG and consists of two receivers and two transmitters.

Where there was no access to VK5RBV now there is via VK5RBG on 147.825, into Adelaide, My thanks to Grant VK5ZWI who supplied the information. The following is from Will Scott VK4XP.

Simple in-band Link Controller

Do you need to link one repeater to another? Do you want to use the simplest and cheapest method? Here is a proven method for linking two repeaters together using only one extra transceiver and a controller.

Where can it be used?

This method has been used for several years now for the link from the Minam Vale repeater on 7625 to the Bundaberg repeater on 6800. Miriam Vale is about 150 km north of Bundaberg and about 70 km south of Gladstone. The stretch between Gladstone and Bundaberg is very long and, except for one or two small towns, is virtually unpopulated

Miriam Vale repeater was installed to cover this area and as there are no local radio amateurs in the service area, it was decided to link it to Bundaberg's 6800 repeater permanently

Motoring radio amateurs now enjoy good coverage between Gladstone and Bundaberg with the associated company a repeater can bring along the way. Naturally this improves the safety coverage in this area as well.

Imagine you are about to conduct a WI-CEN exercise in a repeater dead spot. What about a local repeater with a link to the main repeater? Something that can be set up quickly and easily.

If you have a similar situation which does not require a repeater link with any switching or fancy controls, then this controller may suit you.

How does it work?

All reneaters feed received audio from their receiver into the microphone circuit of the transmitter. As well, when the mute relay opens on the receiver (the Carrier Operated relay or COR), the transmitter Press to Talk (PTT) is operated.

A transmitter timer is included to limit the maximum time the PTT is operated. Also a timer is placed onto the COR so that when the received signal stons, the COR continues to operate for a short period afterwards. This causes a tail to appear on the transmitter of the repeater.

Ident signals may also be connected if required into the COR/PTT circuit and the microphone input circuit. Whilst provision

is made on this controller for an ident, it is not described in this article

Fig 1 shows a block diagram of how the controller is wired into the repeater and the

link transceiver. This set up is used only on one end of the link. The transceiver is tuned to the distant repeater's frequency. This makes it an in-band link. No changes need to be made to the distant repeater

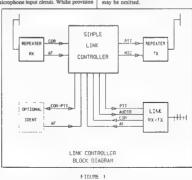
The link transceiver connects into the controller as well as the transmitter and receiver of the repeater. It is wired so that when the COR opens on the repeater receiver, it operates both the transmitter's PTT and the link transceiver's PTT. A tail is applied only to the repeater's transmitter not the link transceiver. If it were applied to the link, a double tail would appear on the distant repeater.

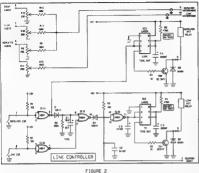
The link transceiver's COR is also connected to the repeater's transmitter so that either the repeater's receiver or the link transceiver will key the local reneater's PTT.

Repeater circuit

Please refer to Fig 2 to work through this explanation. The repeater's receiver operates its COR into PIN 1. The signal is inverted with IC1 and passes through the tail circuit, D1, R2 and C1, Capacitor C1, nominally a 10 uf, controls the tail length for the repeater. This is usually set to about 600 ms.

The signal then passes through the OR gate of IC1 pin 8 and on to the connection for the optional ident. Diode D4 allows an OR function if the ident option is included. Otherwise components D4, R3 and C2 may be omitted.





The signal is finally inverted again for correct sense and fed to the reneater timeout timer IC2, a 555 timer and its associated components. The output from the timer drives a huffer/inverter transistor which is used to key the PTT relay in the repeater's transmitter via pin 4. The transmitter timer is set by varying R4, nominally a

Usually the repeater has a timeout of three minutes. However, it is important that both the link timeout, described below, and the repeater timeout are set to exactly the same value.

This ensures that a conversation is not stopped on one repeater and continuing on the other, with confusion and much embarrassment.

Audio frequency (AF) from the receiver is fed into pin 6 of the controller. It is controlled by R8 then mixed with link AF from pin 7 and the optional ident from pin 8 through resistors R9, R11 and R13, Finally this is fed into the microphone circuit of the repeater's transmitter from pin 9.

Audio quality is important. Audio should be derived from as close as possible to the receiver's discriminator, but after the mute gate. As the level of the signal at this point may be low, it may be necessary to vary R9 and R11 to obtain the correct level for good deviation into the transmitter.

Similarly, the AF feed into the transmitter should be wired into a point after microphone pre-amphification, pre-emphasis and compression to maintain quality. As an absolute last resort, audio may be

tapped across the receiver's speaker and after mixing in the level control, fed into the microphone input direct. The result may be that the link works but the audio quality will be poor.

This describes the reneater control circuit. It may, in fact be used to control any repeater without further modification.

Link Circuit

The link transceiver's COR is fed into the controller on pin 2, inverted by IC1 and then ORed with the reneater's COR on pin 9 of ICI. You will notice the link COR is fed into the repeater's transmitter timer after the tail. So the tail on the repeater, when the signal is from the link, comes from the distant repeater.

Likewise, the signal fed to the timeout timer, 1C3 comes from before the tail circuit - from IC1 pin 3. The timer is similar to the transmitter timeout timer and drives the link PTT circuit via TR2, an interface transistor.

Audio from the repeater's receiver is picked off using R14 and fed via a level limiting resistor, R15, to the link transmitter microphone input from pin 10 on the

controller Once again, care must be taken in choosing the correct tapping and injection points for the audio in the link transceiver.

Ident

An ontional ident may be connected as shown to pin 4 for both COR and PTT and

to pin 8 for audio. A future article will describe a ROM based ident module.

One feature of the controller is that the ident, if fitted, only appears on the local repeater. It does not appear on the distant repeater. This is achieved by keying only the repeater transmitter's PTT during idents and by feeding the ident AF to the repeater's transmitter only. The ident AF does not go to the link transceiver, because the nath back through R9 and R8 results in very high attenuation

The control circuit may be built with all ident components included and the ident simply plugged in later.

Construction

The controller may be built up on veroboard. It is not critical Power should be 12V, fused with a 500 mA fuse. The zero volt side of the power supply should be grounded to the chassis, along with pin 12 of the controller. Use shielded audio cable for AF

connections. Be sure to construct the unit well using

a metal box for RF shielding. Take care with soldering and bolt things down well. Use good quality components and IC sockets where possible. You want this unit to be reliable. A service trip to a repeater to solder a dry joint can be very expensive and time consuming. Time spent now in good construction is built in insurance for the future.

Testing and Set-up

Now finally you have built up the controller and are ready to test it. Firstly, resist the temptation to just turn

it on. Thoroughly check the circuit and ensure the resistance between pin 11. 12VDC, and pin 12, Ground, is at least a hundred ohms. If not, something is wrong, so check your wiring.

Test the controller by itself by connecting switches to ground from pin 1 and pin 2 to simulate COR inputs and relays to pins 3 and 5 to simulate PTTs. Leave the COR switches open. Power up! The relays may click but return to a relaxed state. Check the DC current into the controller. Depending on the relays used, current should be well below 250 mA. The unit without relays should draw between 20 and 50 mA.

Now operate the receiver COR This simulates a signal being received on the main reneater. Both PTT relays should operate. If they don't, investigate why Usually it will be a wiring error

With the receiver COR off, switch the link COR on. This simulates a signal coming in from the distant repeater Only the

repeater's transceiver relay should operate. Now, leaving the link COR on, turn on the repeater receiver's COR. The link relay should now operate while the transmitter relay still holds in. This represents a station on the repeater breaking into the distant repeater's tail. Turn all COR's off.

Now for the timeout checks. Operate the receiver's COR and time the period for the transmitter's relay to drop out. It should be about 3 minutes. Also look out for the link PTT relay drop out. It should be within 2 seconds of the reneater transmitter's dron out. Adjust R4 to get the repeater transmitter right and R5 for the link. The timeout is reset by switching the receiver's COR off momentarily. Make sure both timeouts occur within 2 seconds of each other,

Finally test the tail of the repeater by operating the repeater's COR and timing the transmitter relay dropout. Adjust for about 600mS by changing Cl.

Radio Set up

The connections to the radios should now be made. It is good practice to use plugs and sockets so the radios can easily be disconnected for service and testing.

If the repeater was previously in service. the new controller replaces the existing one. The first step is to fully test out the ra-

dios themselves. Make sure they are 100% on both receive and transmit. Connect the radios into dummy loads.

The mutes on both receivers should be closed. Now connect up the power to all units and switch on

Next open the repeater receiver's mute and the COR should operate. Both transmitters should operate. Close the mute. Now try the link mute. Only the repeater's transmitter should operate. Close the

link mute to clear its COR. Next open the link mute again, note the repeater's transmitter should operate, then open the repeater receiver's mute. This should cause the link transmitter to come on and the repeater's transmitter to remain on. Close all mutes and all transmitters should go off.

If you have not got this right you cannot proceed further. Once again check the wiring and connections.

Audio Set-Up

Now to set up the audio. Set the correct deviation on both transmitters by using their local microphones. Usually it is 7.5 kHz peak for amateur operation. Normal speech should top about 5.5 to 6 kHz.

Next a 1000 Hz modulated RF signal set to about 50 µV should be fed into the repeater's receiver. It should be deviated to about 4.5 kHz at the generator.

Both transmitters should operate as soon as the signal is applied to the receiver. Meter the level on both transmitters and set them also to 4.5 kHz for the hnk If the levels cannot be set correctly, adjust R9 and R15 respectively. These two resistors should be

set up so that R8 and R14 are at mid range Watch transmitter time outs while setting

up the audio. Just drop off the signal generator momentarily to reset them.

Now feed a signal into the link receiver. This time adjust R10 for correct level into repeater's transmitter. Resistor R11 is the

coarse tune for this pot. Go back and check the repeater's receiver level to the transmitters again as interaction

may be occurring between pots. The repeater and link are now ready for burn-in testing.

Burn-in testing

A repeater and link should be reliable, An excellent way to check this is to leave the equipment running for several weeks connected up for general use. Naturally this is best done in town before taking it up onto the mountain.

Before final installation you should take some system measurements including power drain, transmitter and receiver operation, timeouts, tail lengths and so on.

Final Installation

When installing in-band repeater linking watch out for desense of receivers by transmitters close by. This is particularly important when the distant repeater is also on the same band as the repeater with the link equipment. If problems occur, try positioning the link antenna away from the repeater antennas. As well use directional antennas pointed 90 degrees apart if possible, first on the link and then if practical on the repeater.

Reducing the link transceiver power outout and possibly the link receiver sensitivity often helps. A good link can work on 1 watt if the signals from the distant repeater are \$9 or more.

Sometimes interfering RF is passed through the power supply from one radio to another. Make sure your supply is well filtered or operate with independent power supplies.

If the interference persists try physically separating the radios themselves. Also, make sure the earthing between the radios and controller is solid.

Operation

You will find that once installed, your linked repeater system will behave as one. Usually stations will not even know they are linked. Suddenly the coverage of your repeater is doubled. Any station that calls on one repeater will

automatically appear on the other and vice versa. Operators will not need special training to use the link. They simply use either repeater as normal.

After constructing this unit and building your link you may wonder what all the fuss was about with linking repeaters.

Spotlight on SWLing

Robin L Harwood VK7RH 52 Connaught Crescent West Launceston Tax 7250

1993 has arrived and what surprises has this year to offer? It's impossible to say, but a recent symposium at the VOA in Washington DC, stated that shortwave broadcasting will be continuing, particularly as the technology isn't as advanced in the developing world with the economic costs of acquiring it beyond the reach of many. This symposium was sponsored by the United States Information Agency - the parent organisation of the VOA and allowed many broadcasters to share their views regarding the future of shortwave radio towards the 21st Century.

In the past three years, satellite based systems for delivery of programming have dramatically increased, particularly in Europe and many broadcasters such as DW and Austria Radio International frequently mention the transponders in use. These transponders are designed for rebroadcasting, primarily by cable systems and/or

diplomatic missions yet there are an increasing number of private listeners complete with their own decoding equipment to add to their dishes. These are mainly found in Europe with some in North America, vet these can be numbered in the low thousands, compared to the millions who still use shortwave radio in these target areas. Broadcasters such as the BBC External

Services have done serious market research on what their audiences expect and require from their broadcasters. However others are still continuing with programming from domestic sources or have a narrow operational base that doesn't relate to what the audience wants. The largest audiences so far are in West Africa, the Indian subcontinent, China and the CIS nations compared to the North American audience which is one of the smallest. The trend to establish a MW or FM relay within the target area is increasing with many international stations now easily heard in many major

European capitals.

While on that point, I notice that the BBC World Service is now available on a sub-carrier of two public broadcasters in Melhourne and Sydney. This 24 hours a day service will be on a subscription basis with a special decoder being on loan from the BBC. A program guide is also provided For further details contact the Australian office of the BBC World Service, Suite 101, 80 William Street, East Sydney NSW, Telephone (02) 331 7744. The subscription is around \$150 annually. I believe

On the 23rd of October last year, a special transmission was heard in Australia by some shortwave enthusiasts. It came from the remote Atlantic island of St Helena. which is known from the history books as the place where Napoleon Bonaparte was sent into exile and died. A sender of Cable & Wireless was utilised for the two hour transmission in English around the local sunrise here in eastern Australia. The frequency varied but was approximately 11092. USB. Many DXers called the station on the phone and via fax. Sadly though, I unfortunately missed out as I'm still plagued by the PLL on my ICOM R70 unlocking at the most inconvenient times.

Standard Frequency and Time Station-VNG has now added another channel to its services. It is now on 2.5 MHz as well as 5 MHz, and from 2200 to 1000 UTC on 16 MHz. There is a talking clock plus an identification announcement given every 15 minutes. VNG, which is based at the CAA HF site in Llandilo NSW, also operates on 8.638 MHz and 12.984 MHz, which are on loan from the Royal Australian Navy, Identufication is given on AIA and not on voice. although you can faintly hear the voice announcements.

Well, that is all for this month. Just a reminder, you can now leave messages for me on nacket addressed as follows :-VK7RH @ VK7BBS Launceston TAS. AUS, OC.

Until next time, the best of 73 - Robin L Harwood VK7RH.

nicate with Hobart using a handheld rig. The link is activated by using a sub-tone of 250.3 Hz. selected because no modifications were necessary to the reneaters and the tone could pass through a repeater with little attenuation

Bangladesh

Special mention should be made of the contact between Rex VK8RH and S21ZE in Bangladesh at 1405 on 11/10/92. Apprentby Andy VKSAH was the first to hear the station at 1400 of the dx-nedition mounted by two Jananese stations, but was unable to complete a contact due to low power and a small antenna.

Andy advised Rex who has a larger station and a two-way CW OSO resulted, giving him the first ever VK to S21 contact. Good work gentlemen.

Scott Watson VK2JSR/VK4JSR writes enclosing a packet message from Ken IA3EGE which lists the various Spanish stations authorised to use 50 MHz. Briefly there are 17 in EHI, 5 EH2, 24 EH3, 6 EH4, 5 EH5, 16 EH7, all these being in Spain itself. 5 EH6 on Balearic Island, EH8ACW on Canary Island and EH9IB and EH9HM Ceuta and Melilla; so it is possible to work four countries with the EH prefix. This information may not now help VK stations but could interest overseas stations.

VHF/UHF An Expanding World

Eric Jamieson VK5LP PO Box 169 Meningie South Australia 5264

All times are UTC

Six metres

Rather surprisingly, six metres has been relatively quiet, with a little F2 propagation and a small amount of Es. 28/10: 0030 VK4BRG and VK4JH, 0330 JAs and VK2OF worked HL9UH, 2310 VK4WTN 5x9. Through November, mainly VK4s and JAs.

Via F2, Steve VK6PA on 1/11 from 0830 worked 9H1BT, 9H5ET, 9H1PA, 9H1ET and 9H1AZ, the latter transmitting 10 watts! During the 40 minute opening signais varied from S3 to S9. No other signals were heard. On 11/11 at 0900 Steve VK3OT had a rare opening to Europe when he worked PEIJKW at 539. This was 12 months after a similar opening, 19/11; 0040 VK4JH, 0500 pagers to 40 MHz, 0605 VK4BRG who said he had earlier worked K6MYC/KH6 as did stations in Brisbane. During the week ending 20/11 six metres operation in VK5 was frequently interrupted by thunderstorms appearing most afternoons

Graham VK6RO said that on 20/10 he worked HL9UH and JAs were strong in Perth on 7/11 and 8/11 John VK4ZJB worked T30JH on 2/11 and reported that ZLs had worked W on 30/10. From time to time brief Es openings have occurred from VK3 and VK5 to VK4, sometimes lasting only a minute. The Toowoomba Channel 0 transmitter is occasionally heard strongly and has been noted in Europe.

Ron VK4BRG writes that it has been very quiet at Sarina, no new countries worked. Isolated very strong TEP openings to JA and KH6. Only other stems in log are HL9UH on 26/9, T30JH on 29/9 and 2/11, NI6F and KH6IAA at 0237 on 15/11.

Joe VK7JG sent his Six Metres Standing List upgrade and advised that pressure of work kept him off six metres for much of Cycle 22. Also, during that time, a shack rebuild was necessary, including the construction of a 45 foot (14 m) tilt-over tower, but not all aerials are attached. He hopes to have his 1296 MHz gear again operational this summer.

Joe also advises that after 12 years operation, the six metre beacon VK7RNT, is to be closed down for the time being, having served its useful purpose. It may be reinstalled in the future from a common site with beacons on 144, 432 and 1296 MHz.

Recently. Joe built an RF link to connect VK7RAB 438.55 repeater in northern Tasmania to VK7RAF 147.250 in the south Amateurs in Launceston can now commuMD6KW Dave ZL1AFO has written regarding my query on the callsign MDSKW and drew my attention to a reference on the matter in John Clarricoats (G6CL) book World At Their Fingertips, John reports on the first two-way Transatlantic contact on 50 Mc/s between Ed Tilton W1HDO and Denis Heightman G6DH on 5 November 1947, and then goes on to say that two days later Heightman made contact on 50 Mc/s with Major Ken Ellis, G5KW, then operating as MD5KW from the Suez Canal Zone - the first contact between the UK and this area. Minutes later Ellis worked E J Laker, G6LK and W.E. Russell, G5WP - both located in Surrey. So the first contacts associated with MD5KW have been tabulated in Australia and I thank all who have contributed. Incidentally, Dave ZLIAFO says that John Clarricoats book should be required reading for VHF enthusiasts.

Reports from Europe

dividual suffix

Ted Collins G4UPS, says the KINFE beacon on 50.061 is off the air, as also is 9LISL on 50.091. The Slovenia beacon 4N3SIX on 50.015 has changed its callsign to S55ZRS.

From 24/10 the Republic of Slovenia changed its callsign prefix from YU3/YT3 to S5 plus a figure from 1 to 9 plus the in-

Latermen

OD5SK has a 160 watt linear courtesy of JAIVOK, plus a five element yagi. There is still no sign of the OD5SIX beacon.

Jan Mayon Island

This remote island in the Arctic Ocean is now operational on six metres. The first contact with JX3EX was made by SM3JGG at 2035 on 13/10. The JX7DFA beacon runs 10 watts on 50,079.

The October report tends to indicate a lack of F2 propagation from Europe, with contacts via TEP or Es. Those heard/worked included 3X0HNU. 4N3SIX/b, 7Q7CM, 7Q7JL, 7Q7LA, 7Q7RM, 7Q7XX, 9H1PA, 9H5AB, 9H5EE, 9H5ET, CN8ST, CT0WW/b, CTIBGE, DJIOJ, DJ3TF, EH2AGZ, EH6ET, EH7AJ, EH7ERS, EH9IB, FCIJG, IK3GHZ, IK5NTE, IK8DYD, IT9IPO, IV3GBO, OE6LOG, OE9FKI, OKIMAC, OK2PZW, OK3LO, PY5CC, S5ICN, SM3EOY, SM7BAE, V51VHF/b. YT3EY, YU2IO, YU3OV, YU3ZW, ZB0T, ZP5JCY, ZS6AXT, ZS6WB, ZS6XJ, ZS9A.

Geoff Brown GJ4ICD said that from Jersey Island on 4/10 there was a TEP opening to South America with ZP5, PY5 and LU being worked and CE heard. There were a few openings to Africa and at the end of the month VK TV was heard on 46.249.5 MHz.

Other TEP openings were on 9/10 when ZS6WB reported the 5B4CY beacon at 1630, on 11/10 with ZS6, A22 and 707 all strong, 12/10 started off well with Es to Spain, then linked up with TEP to provide a strong path to PY5, LU, CX and CE.

From 13/10 onwards Es openings predominated and provided contacts to 17, 18, YU3, SP, EH9 and CN8.

The World Above 50 MHz After nearly 18 years, Bill Tynan W3XO/5 has finally relinquished his position as conductor of the OST "The World Above 50 MHz" columns. For many years Bill and I have exchanged VHF/UHF notes and this has given us an opportunity of getting to know one another. A highlight had to be on 8 May 1991 when I managed to work Bill on six metres during a five minute opening, giving him his first VK5 contact. The most disappointing aspect of our association was later that year when Bill, during a visit to Australia, called at my house to see me and I was in Adelaide for a medical appointment the only day I had been absent during the previous two months! I wish Bill every success in his future usage of the VHF bands, and look forward to continuing the exchange of information with the new "baton holder," Emil Pocock W3EP, who is a well known OST author

and VHF/UHF experimenter.

Bill's final notes in November OST largely concern the Perseids Meteor Shower from 11/7 to 11/8. On the latter date KJ7F said that two metres sounded like 20 metres during a contest! Large tropo openings also occurred 7 to 9/8, but the best was 21 to 23/8 and involved considerably enhanced operation on all bands to 3456 MHz. On 21/8 a 10 GHz all home station contact took place between Chuck WA6EXV in DM15dp and Phil W6HCC DM13rpy. The path from Chuck's 2500 foot (762 m) location to Phil's 2000 foot (610 m) location had to cross the 5000 foot (1524 m) El Paso Mountain range, scatter for about 75 miles (121 km) before knife edging over the 6000 foot (1829 m) San Bernardino Mountains, Bill comments "who said there had to be line of sight!". The equipment was SSB/CW.

The first notes from Emil Pocock W3EP are for December 1992 and he gives considerable space to the propagation results which came from a large high pressure system, commencing 11 September, which resulted in two metres and above contacts over a vast area of central to eastern USA. encompassing portions of grid squares EL. EM, EN, FM and FN, with a central high pressure reading of 1028 millibars. (This is nearly as great a high as that which encompassed Australia on 16 March 1988 with a reading of 1032 MB) W2SZ/1 had contacts on 144, 222, 432 and 1296 MHz at distances of over 1850 km (the same from Adelaide to Albany.) Many other stations had contacts in the

1000 km plus range. The enhanced conditions lasted for six days, so anyone who missed out must have been watching too much television!

If you are into contacts via meteor showers, keep in mind that the Quadrantids meteors peak at 1234 on 3 January 1993.

Vale VK6FM

The November issue of the West Australian VHF Group Newsletter gives prominence to the recent passing of Ron (Flash) Mould VK6FM, who was a foundation member of the Group.

Ron was an enthusiastic home-brew constructor and looking to build something bigger and better. One project was to construct a five over five over five antenna system for six metres! It was not certain whether the antenna was completed, but Ron certainly tried.

In latter years Ron was constructing a ten metre parabolic antenna for EME work on 1296 MHz, but failing health was to overtake him before it could be completed. He died on 14 October 1992 after a long illness.

Countries worked from Australia on six metres

The following are amendments to the De-

cember 1992 list.

Delete: HC5K Galapagos; HK0/W6KV Malpelo; VK2BZ Australia. Change: 4X1IF to 25/10/91 and shared by VK8AH and VK8RH: 6Y5RC to 6Y5FS on 24/03/90. VK2BA: AH8A to 19/04/81, VK2VC: C21AA to 20/12/70, VK4ZRW (VK4IT); CTILN to 03/03/90, VK4RO; DL0SI to DL8HCZ on 12/10/89, VK8ZLX; HC2BI to HC5K on 26/03/89, VK2MO; HL9WI to 15/04/70, VK4ZRW (VK4IT); T30DJ to T3AZ on 17/03/80, VK4RO; VS6AB to VS6HK on 05/05/78, VK4RO; YB9X to on 01/05/79. VK4RO: YV5/DL3ZM to 18/03/81, VK4RO: ZD8TC to 20/03/82, VK4RO: ZL2DS to ZL2MF on 21/12/47, VK5GF (SK); ZL9TPY to 21/01/90, VK2VC

Following the vast number of changes to the original November list, the above represents only a small change to the December listing. There are likely to be others as times are sorted. The complete list now contains 164 countries strictly in accordance with the May 1992 ARRL DXCC Countries List.

The bands above 50 MHz

Scott VK2JSR/VK4JSR reports that activity from VK4 and northern VK2 is alive and well. The regular skeds at 0730 (NSW local time) on Saturdays and Sundays, and 2030 (NSW local time) on Mondays, Wednesdays and Fridays, continue between Gordon VK2ZAB and Ross VK2DVZ to those on the northern end of the path, namely VK2EA Lismore (144), VK2JSR/VK4JSR Alstonville (144-432), VK4ARN, VK4KZR, VK4DH, all in Brisbane north and on 144-432. VK4YZ Caboolture (144), Reports being passed on the two metre repeater indicate there are a number of listeners.

The majority of these paths are covered by aircraft enhancement modes with contact peaks lasting for up to 5 minutes with a second peak/plane around 20 minutes later. In addition, regular morning tropo also occurs. Thanks Scott, I'm glad I asked about activity. It would now be worth hearing from the Perth region!

Cineure

Hopefully, next month there will be more VK activity to report but so far Es has been very slow to provide any sustained contacts, Closing with two thoughts for the month:

- 1. If at first you don't succeed, try, try again. Then give up, there's no use in being a damn fool about it, and
- 2. We are not primarily put on this earth to see through one another, but to see one another through.

All the best for 1993, and 73 from The Voice by the Lake.

HAMADS

TRADE ADS

- AMIDON FERROMAGNETIC CORES. For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Klama NSW 2533 (no enquiries at office please 14 Boanyo Ave Kiama). Agencies at Geoff
- 14 Boanyo Ave Kiama) Agencias at Geoff Wood Electronics, Sydney Webb Electronics, Albury Assoc TV Service, Hobart Truscotts Electronic World, Melbourne
- WEATHER FAX programs for IBM XTATS.
 "RADFAX2" SS-00, is a high resolution short-wave weatherfax, morse and RTTY receiving program Suitable for CGA, EGA, WSA and Herculee cards (state which) Needs SSB H= rsd o and RADFAX decoder;
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 Feca vs. "" "MAXISAT" 37-50 or similar to SATFAX but needs 2 MB of expanded memory (EMS 36 or 40) and 1024 x 786 SVGA card All programs ere on 5.28" or 35" disks (state which) plus documentation, and 33-00 possion, on the program of the companion of the

FOR SALE NSW

 YAESU FL2100B Linear, S/N5H310330 plus four slightly used 572B finals, \$1,400 ONO; KENWOOD TS520S xcvr, exc cond, desk mic, manual, two spare finals (unused), \$600 ONO, VK2QZ QTHR (089) 62 3578.

FOR SALE VIC

- e SHACK CLEARANCE, no reasonable offer refused, DRAKE TX4C/R4C, FTDX400, FTDX401, ICOM IC22A, VINTEN MR8 2m (240y, VINTEN 6m test equipment, new Ruffx valves, Books, Co-ax, Collectorsf Army 19 set, MN26 RICompass, EDDYSTONE 540 Rx, lots more, Len VKSLP GTHR (054) 72 3797.
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- DECASED ESTATE of the late John Psland VIXOG2: COM LTG1 (SNI 0039) HT Tours and VIXOG2: COM LTG1 (SNI 0039) HT Tours with PSSS inculit PSJJ, ATSO ATJ (SNI 05255, S MR8 date km; 2456 CNO); (DON 10258 Azm FM mobile (SNI 21628) SSS ONO, KENWOOD TSZSS (SNI 001009), ATZO ATJ (SNI TSZSS (SNI 001009), ATZO ATJ STSO CNO, ATN 153-08 Ltg Phinotic Ant, SSSO ONO, DST136 MILIT Meter SNI UNIDEN Mobile Mic SI0, SWIT Meters model TRS with matches \$10, MIRCONTA H= \$10, OSCAR-BLOOM CONTROL (SNI 2526) \$20, OSCAR-BLOOM CONTROL (SNI 2526)

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- VALVES, PWR TFRMRS, old radio parts, send your wanted list incl fx valves. Can any one use 85% per tubes, LOPF yoles, etc (new) for 88W TV (valve types), give away price, subject to offer & collection, Fred Chappel VK4DY PO 8bx 17 Woodford Old 4514.
- KENWOOD TS820S (Digital) with ext VF0820, DRAKE low pass filter, QUEMENT PWRSWR meter, Mic, Manuals, and homebuilt Antenna Tuner 10,15,20. New finals recently fitted. Licenced amateurs only please \$525 the lot. Bob (07) 207 6715.

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EQUI PUTE ANY

 ICOM IC551 6m 10W base, 12V, S/N 02702, \$360; ICOM AT100 Auto tuner S/N 02159, \$290;
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 Graham VK6RO QTHR (094) 51 3561.

WANTED NOW FV101B ext VFO in wkg order, TELONIC

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- YAESU FT690R 6m txcvr or similar unit;
 Rick VK2XRB (047) 51 2847 after 6 pm.

WANTED VIC

- DONATION OF WORD PROCESSING SOFTWARE for AMSTRAD CPC6128 CPM computer. The recipiont is an Anglican Minister of Religion who is moleved with the on-going welfare of first and aged citizens in a large hostel, but has little funding or resources. All freight costs will be re-mbursed Please contact Bruce VK3UV (3THR (03) 580 6424, mobile 018 388 0454.
- YAESU FT7 Trown or similar in VGC, VK3DSS (03) 870 8336.
- 3/8 inch to 1/4 inch shaft reducers, Tony VK3CTM QTHR (03) 878 4460.

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Solution to Morseword 70 Across: 1 bue; 2 daze; 3 roam; 4 sins; 5 bud; 6 feel; 7 rated; 8 pain; 9 beak; 10 Mass.

Down: 1 great; 2 inept; 3 sued; 4 fist; 5 peas; 6 June; 7 green; 8 for; 9 fire; 10 user.

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